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ROCKY MOUNTAIN SPOTTED FEVER: VACCINATION OF MONKEYS AND MAN

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In a previous publication¹ we have shown that guinea pigs may be successfully vaccinated against Rocky Mountain spotted fever by injections of phenolized emulsions of tick virus. Data are now submitted which (1) prove that this vaccine will also protect monkeys and (2) suggest that it will confer immunity upon man.

PREPARATION OF THE VACCINE

The production of a potent vaccine from tick emulsions is dependent upon a high concentration of virus in the ticks from which it is prepared. By the injection of decreasing amounts of emulsions of infected tick viscera into guinea pigs, the minimal infectious dose of any given emulsion may be approximately determined. After many such titrations, employing fed and unfed infected ticks (*D. andersoni*) at all stages of the life cycle, it has been found that the highest concentrations of spotted fever virus occur two to four days after the beginning of the adult feeding.²

Such ticks, usually in lots of 100, are permitted to feed three days on guinea pigs, then at once eviscerated one by one and ground in a mortar for 10 or 15 minutes with sterile sand and a few cubic centimeters of salt solution. By this procedure the internal organs

¹ Spencer, R. R., and Parker, R. R.: Rocky Mountain Spotted Fever: Experimental Studies on Tick Virus. Pub. Health Rept., Nov. 28, 1924. (Reprint No. 976.)

² *Rearing of infected ticks for the preparation of the vaccine.*—The rearing of adult ticks from which the vaccine is made is a prolonged and tedious process. Potent virus can not be obtained from the tick in the same stage in which it receives the infection. Virus ingested by larvae does not increase appreciably in the engorged larvae. It is not until the next stage, or nymphs, that any increase in amount or virulence is apparent, while in the succeeding adult stage the increase is often greater than in the nymphs. The ticks which serve as culture tubes must be infected as larvae and then reared to adults; for it is in the adult ticks that the virus is most constantly of high virulence. It is therefore necessary to begin operations in the spring before that in which the vaccine is to be used. Adult males and females are selected from lots which have been reared in the laboratory and proved free from spotted fever and other infection by tests carried out during the earlier stages of the life cycle. The females are brought to full engorgement on rabbits, fertilization by the males occurring during the feeding. Each engorged female is placed in a separate pill box, assigned a lot number, and placed over moist sand. Egg deposition and hatching follow. The progeny of each of these females are carried forward as a unit. As larvae and again as nymphs each lot is permitted to engorge on a host. An infected rabbit is used for feeding the larvae and later a normal rabbit for the nymphs. After each engorgement a few ticks are injected intraperitoneally into guinea pigs to determine whether spotted fever infection has been acquired and to check again the absence of extraneous infection. After the nymphs have molted to adults they should be permitted to remain quiescent a few months, since experience has shown that recently molted adults do not as consistently yield as strong virus as those which are older.

are easily separated from the fragments of chitin which quickly settle to the bottom and a fairly homogenous emulsion is obtained. The emulsion is next diluted with sufficient salt solution so that each cubic centimeter contains the equivalent of the viscera of two or more ticks. At this stage the minimal infectious dose for guinea pigs is determined by the injection of graded dilutions, using two guinea pigs for testing each dilution. If either of the guinea pigs receiving one-thousandth of a tick fails to develop spotted fever, the material is not considered suitable for the preparation of a potent vaccine. Minimal infectious doses of one five-thousandth of a tick are preferable. The emulsion is now diluted with salt solution so that each cubic centimeter contains the equivalent of one tick, and phenol is added at the same time to make the final product contain 0.5 per cent of the preservative. The mixture is permitted to remain two or three days at room temperature. During this time a rather heavy precipitate forms and extraneous organisms are killed, as shown by subsequent anaerobic and aerobic sterility tests. The precipitate is best separated by slow centrifugation, since the emulsion does not pass readily through filter paper, and since its potency is destroyed if passed through a Berkefeld filter. The supernatant fluid, which is the material used as a vaccine, has a moderate turbidity (less than 200 parts per million).

The precipitate after drying also has been shown to possess protective qualities if reemulsified and injected into guinea pigs. No further study of this fraction has been made up to the present time.

DOSAGE

We have found it difficult to determine the minimal protective dose for guinea pigs. A small amount of a given lot of vaccine may protect one guinea pig while an equal and sometimes larger amount of the same material fails to protect another animal of approximately equal weight. In comparing the potency of two batches of vaccine, one would expect higher protection from the lot which gave the lowest minimal infectious dose before the contained virus was killed with phenol. This is not necessarily the case. Such irregularities are not surprising, however, when we recall that so little is known of the various factors affecting the process and mechanism of immunity. Typical tests upon three batches of vaccine are given below.

Typical tests on three batches of vaccine

| Pig No. | Dose of vaccine ¹ | Result of blood virus injection (1 c. c.) 12 days later | Pig No. | Dose of vaccine ¹ | Result of blood virus injection (1 c. c.) 12 days later |
|---------|------------------------------|---|---------|------------------------------|---|
|---------|------------------------------|---|---------|------------------------------|---|

Vaccine No. 130—Live virus titration=1/1,000 c. c. (1/1,000 tick) M. I. D. Prepared Apr. 2, 1925; tested Apr. 15, 1925

| | | | | | |
|---|---------------|---------------------------|---|---------------|--------------------------------|
| 1 | $\frac{1}{4}$ | Spotted fever. Recovered. | 4 | $\frac{1}{4}$ | Spotted fever. Died. |
| 2 | $\frac{1}{4}$ | Spotted fever. Died. | 5 | 1 | Died from secondary infection. |
| 3 | $\frac{1}{2}$ | Immune. | 6 | 1 | Immune. |

Vaccine No. 221—Titration=1/1,000 tick (M. I. D.). Prepared Mar. 31, 1925; tested Apr. 15, 1925

| | | | | | |
|---|---------------|------------------------------------|----|---------------|---------|
| 7 | $\frac{1}{4}$ | Immune. | 10 | $\frac{1}{2}$ | Immune. |
| 8 | $\frac{1}{4}$ | Died early of secondary infection. | 11 | 1 | Do. |
| 9 | $\frac{1}{2}$ | Immune. | 12 | 1 | Do. |

Vaccine No. 223—Titration=1/5,000 tick (M. I. D.). Prepared Apr. 11, 1925; tested Apr. 15, 1925

| | | | | | |
|----|---------------|---------------------------|----|---------------|---------|
| 13 | $\frac{1}{4}$ | Spotted fever. Recovered. | 16 | $\frac{1}{2}$ | Immune. |
| 14 | $\frac{1}{4}$ | Spotted fever. Died. | 17 | 1 | Do. |
| 15 | $\frac{1}{2}$ | Immune. | 18 | 1 | Do. |

¹ Each dose of vaccine given in cubic centimeters also represents the same fraction of a tick.

Guinea pig No. 3 was protected by one-half cubic centimeter of vaccine No. 130, but the same amount did not protect guinea pig No. 4.

Guinea pig No. 7 was protected by one-fourth cubic centimeter of vaccine No. 221, but one-fourth cubic centimeter of vaccine No. 223 failed to protect guinea pigs No. 13 and No. 14, although this vaccine was prepared from an emulsion containing 5,000 M. I. D. per cubic centimeter as compared with 1,000 M. I. D. in vaccine No. 221.

In amounts smaller than one-fourth cubic centimeter the vaccine has frequently modified, but never completely prevented, the infection. On the other hand, 1 cubic centimeter amounts have invariably protected guinea pigs when the minimal infectious dose of the live virus emulsion was one five-thousandth cubic centimeter. More concentrated lots of vaccine so prepared that the equivalent of two ticks was contained in each cubic centimeter have been used with good results. Higher concentrations than this, however, yield emulsions of great turbidity.

The majority of our preparations have lost their protective quality after 5 or 6 weeks, but we have encountered one lot which fully protected guinea pigs in 1 cubic centimeter amounts after six months' storage in the ice box.

Guinea pigs receiving two doses of 1 cubic centimeter each have shown immunity to 1 cubic centimeter of blood virus as long as eight months. Tests for longer periods were not made.

These tests merely indicate what may be expected as to the duration of immunity, the minimal protective dose, and the keeping qualities of the vaccine. At the present time our data are too meager to justify the making of generalizations.

VACCINATION OF MONKEYS

Tables 1 and 2 show complete protection of vaccinated monkeys against 1 cubic centimeter of blood virus (500 to 1,000 M. I. D. per cubic centimeter for guinea pig) and against one-tenth cubic centimeter of tick virus (500 M. I. D.). All five control monkeys died showing a typical rash. A spleen emulsion of monkey No. 10 produced typical fever and symptoms when injected into guinea pigs. The eight vaccinated animals remained well.

TABLE 1.—Vaccine No. 210—Vaccination of *M. rhesus*

[Vaccine prepared Feb. 19, 1925; injected subcutaneously. Titer=1/5,000 tick]

| No. | First dose Feb. 25, 1925 | Second dose Mar. 2, 1925 | Immunity test Mar. 12, 1925 | Result |
|-----|-----------------------------|-----------------------------|--------------------------------|--|
| 1 | Control..... | ..... | 1 c. c. blood virus. | Mar. 25, 1925.—Dead. Typical spotted fever and rash. |
| 2 | do..... | ..... | do..... | Do. |
| 3 | do..... | ..... | do..... | Mar. 22, 1925.—Dead. Typical spotted fever and rash. |
| 4 | 1 c. c..... | ..... | do..... | Apr. 4, 1925.—Active and healthy. |
| 5 | do..... | ..... | do..... | Do. |
| 6 | do..... | 1 c. c..... | do..... | Do. |
| 7 | do..... | 2 c. c..... | do..... | Do. |
| 8 | do..... | do..... | do..... | Do. |

TABLE 2.—Vaccine No. 219—Vaccination of capuchin monkeys

[Vaccine prepared Mar. 21, 1925; injected subcutaneously. Titer=1/1,000 tick]

| No. | First dose Mar. 25, 1925 | Second dose Apr. 1, 1925 | Immunity test Apr. 11, 1925 | Result |
|-----|-----------------------------|-----------------------------|--------------------------------|---------------------------------------|
| 9 | Control..... | ..... | 1/10 c. c. tick virus. | Apr. 21.—Dead. Typical spotted fever. |
| 10 | do..... | ..... | do..... | Do. |
| 11 | 1.5 c. c. vaccine. | 1.5 c. c. vaccine. | do..... | Remained well; discharged June 1. |
| 12 | do..... | do..... | do..... | Do. |
| 13 | do..... | do..... | do..... | Do. |

EXPERIMENTAL VACCINATION OF MAN

In investigations of Rocky Mountain spotted fever or other disease transmitted by insect vectors, no attempt has been made, so far as we are aware, to protect man by inoculating material from an intermediate host. Breinl³ has shown that guinea pigs may be protected against typhus fever by injecting phenolized emulsions of infected lice, but the method was not applied to man.

³Breinl, F.: Studies on Typhus Virus in the Louse. Jour. of Inf. Dis., January 1924, vol. 34, No. 1, pp. 1-12

Up to the present time a total of 34 people, chiefly laboratory and field workers in Rocky Mountain spotted fever and others whose occupations expose them to infection, have been vaccinated. Each lot of vaccine for human use was first tested for sterility, following the Hygienic Laboratory technique required for biologic products, and for protective quality and harmlessness by injection into guinea pigs.

The vaccine was administered subcutaneously in doses of 1 or 2 cubic centimeters each at five-day intervals. Some have received two, some three, and some four injections. No severe reactions have been encountered. The total number of M. I. D. for guinea pigs per vaccinated individual has varied from 2,000 to 17,500. The greatest number used for one injection has been 10,000. The vaccines used have contained 1,000, 5,000, and 10,000 M. I. D. of killed virus per cubic centimeter.

Local redness, swelling, and heat, reaching a maximum within 48 hours, is the rule. Slight headache and muscular pains occurred in a few instances, but no elevations of body temperature developed, and all persons vaccinated carried on their duties as usual. The reactions following the first injection have been exceedingly mild, but in some individuals they increased in intensity and duration after the last injection, suggesting an increasing sensitiveness.

One person who gave a history of extreme sensitiveness to the bite of insects developed a general itching, with watering of the eyes, almost immediately following the first injection. For two weeks there appeared and disappeared several crops of an urticarial rash, accompanied by itching. The condition, however, did not interfere with the performance of his regular duties. An intradermal injection of one-tenth cubic centimeter of the vaccine given two weeks later was followed immediately by an urticarial wheal 1 inch in diameter. It is believed that the intradermal test may be used to detect any sensitive individual and thus avoid severe reactions.

DEMONSTRATION OF PROTECTIVE BODIES IN THE SERUM OF VACCINATED ANIMALS AND OF MAN

On May 22, 1924, 1 cubic centimeter of serum from each of 12 normal Belgian rabbits was mixed with 1 cubic centimeter of guinea pig blood virus and immediately injected intraperitoneally into guinea pigs. All of these animals developed typical spotted fever, from which only one recovered, demonstrating that the normal rabbit sera contained no virus-neutralizing substances. The rabbits were subsequently each given subcutaneously three injections of vaccine (May 22, May 26, and June 13). On August 21, 2 rabbits having died of intercurrent infection, 1 cubic centimeter of the serum of each of the remaining 10 was again mixed with 1 cubic centimeter of blood

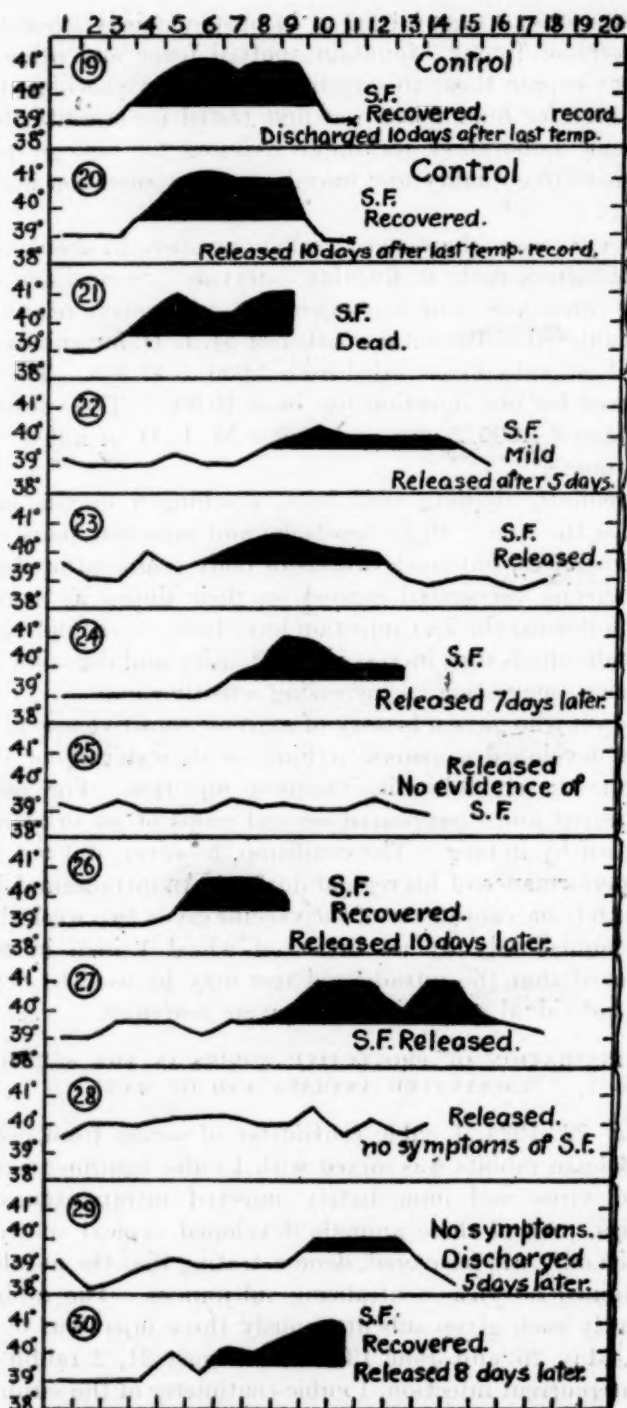


CHART 1.—Daily temperatures of guinea pigs injected with mixtures of serum from vaccinated rabbits and blood virus. (Temperatures above 39.6° C. are regarded as definite fever, and areas between this line and the temperature curve are shaded in black.)

virus and immediately injected into fresh pigs. The sera of two fresh rabbits were used as controls. Chart No. 1 gives the results of these inoculations. The sera of the controls (Nos. 19 and 20) and of one of the vaccinated rabbits (No. 21) did not apparently affect the virus. However, two of the guinea pigs (No. 25 and No. 28) developed no symptoms of fever and all the others gave a markedly delayed incubation period.

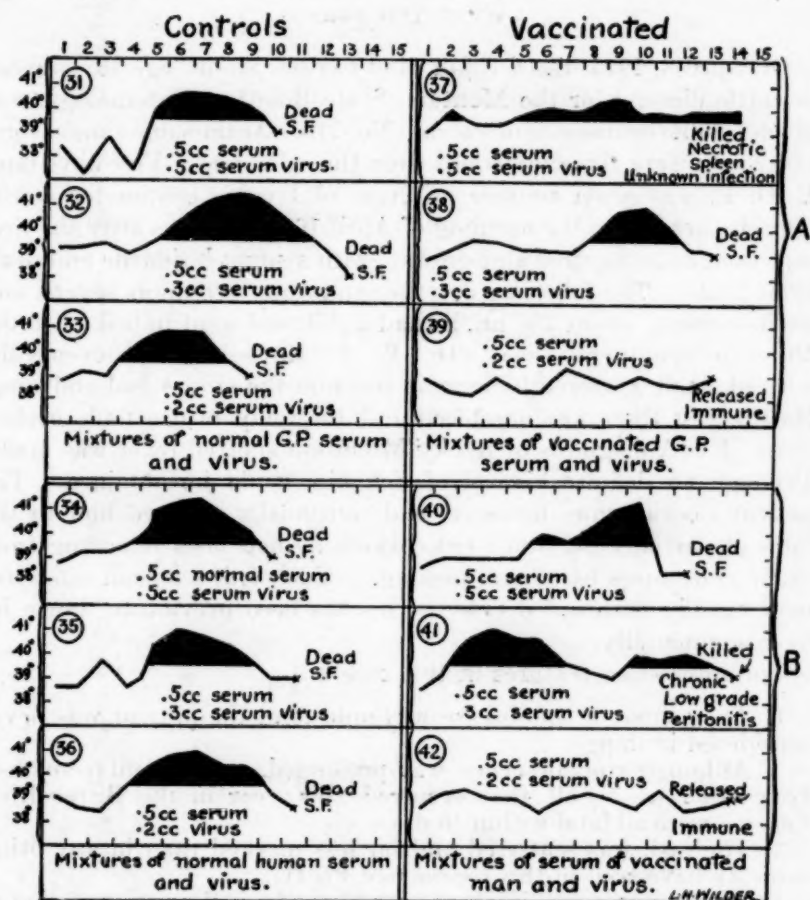


CHART 2.—Daily temperatures of guinea pigs injected with (A) mixtures of serum from vaccinated guinea pigs and decreasing amounts of blood virus, and (B) mixtures of serum from vaccinated man and decreasing amounts of blood virus

Chart No. 2 gives the result of injecting into guinea pigs mixtures of blood virus with (1) serum from vaccinated guinea pigs and (2) with serum from vaccinated man. This time the mixtures were permitted to remain one hour at room temperature before inoculating.

Guinea pigs No. 31, No. 32, and No. 33 were injected with mixtures of normal guinea pig serum and virus. Guinea pigs No. 34, No. 35, and No. 36 were injected with mixtures of normal human serum and

virus. All six of these control animals died promptly of spotted fever. Guinea pigs No. 39 and No. 42 show that 0.5 cubic centimeter of serum of a vaccinated guinea pig and of a vaccinated man neutralizes 0.2 cubic centimeter of blood virus. The human serum had been tested before vaccination and showed no virus-neutralizing effect.

PROBABLE MODIFICATION OF ROCKY MOUNTAIN SPOTTED FEVER IN A
VACCINATED PERSON

On April 8, 1925, E. O. E., of Stevensville, Mont., age 43, engaged in cattle dipping for the Montana State Board of Entomology, was given 1 cubic centimeter of vaccine No. 218. At the same time several other men were given injections from the same vial. Five days later E. O. E. was given another injection of 1 cubic centimeter in the opposite arm. On the morning of April 16, eight days after the first injection, he arose tired and drowsy, with a slight headache and muscular pains. The following day the symptoms were more severe, and in the evening, about 7 p. m., he had a chill and went to bed. On the 19th the family physician, Dr. W. P. Reynolds, of Stevensville, noticed small scattered hyperemic spots on the ankles and abdomen. On the 21st there was nosebleed and the temperature had reached 103.8° F. A diagnosis of Rocky Mountain spotted fever was made, although no definite history of tick bite could be obtained. The patient's occupation, however, had continually exposed him to the bites of partially fed adult ticks which he had been removing from cattle and horses by "hand picking." Such fed ticks can infect far more readily than unfed ticks. This has been previously shown by us experimentally.⁴

The interesting features in this case are:

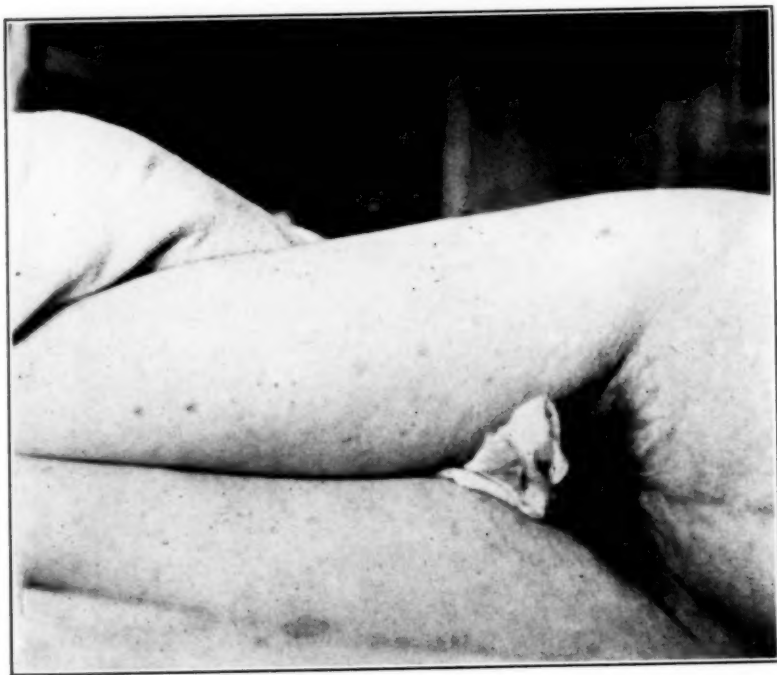
1. The course of the disease was mild, and the patient was never considered in danger.
2. Although convalescence was prolonged, the patient recovered. Four other cases—all that occurred this year in the Bitter Root Valley—were all fatal within 10 days.
3. The rash was scattered and far less marked than in any other cases we have seen in this region (see Pl. II).
4. Three guinea pigs injected with blood from the patient failed to show spotted fever. This has happened, however, in other typical cases, but never in those of a severe character.

It is, of course, impossible to state that the vaccine modified the course and severity of the infection. Vaccine No. 218 was prepared on March 18, 1925, from a tick emulsion which gave a titer of one one-thousandth tick as the M. I. D. On March 25 it protected guinea pigs in one-half cubic centimeter amounts.

⁴ Spaulder, R. R., and Parker, R. R.: Rocky Mountain Spotted Fever: Infectivity of Feasting and Recently Fed Ticks. Pub. Health Rep., Feb. 23, 1923, pp. 333-339. Reprint No. 817.



Fatal case of Rocky Mountain spotted fever; photograph taken about the eighth day. Many cases in the Bitterroot Valley, Montana, die before the rash has developed to this stage.—(Courtesy of Surg. L. D. Fricks)



Appearance of rash on eighth day in a case of Rocky Mountain spotted fever which was probably modified by vaccination

The time required for an immunity to develop has varied considerably in vaccinated guinea pigs. We have regarded 10 days as a minimum period. We are therefore unable to draw any definite conclusions as to the efficiency of the vaccine from this case, but believe the circumstances as reported are worthy of note.

We see no reason why injections may not be repeated each spring in persons whose occupations definitely expose them to infection. It would be impracticable to vaccinate the general population of the spotted fever region, but it is believed that the vaccine affords a means of protection for all those necessarily exposed to the infection and who choose to avail themselves of it. This would include residents and vacationists in badly infected areas, laboratory and field workers in Rocky Mountain spotted fever, foresters, lumbermen, sheep herders, surveyors, hunters, prospectors, and fishermen.

SUMMARY

1. The technique for the preparation of a protective vaccine against Rocky Mountain spotted fever from infected adult ticks is given.
2. The potency, keeping qualities, and duration of immunity induced by this vaccine have been estimated within certain limits.
3. The vaccine will protect guinea pigs, rabbits, and monkeys.
4. The vaccine has been administered to 34 adults with no severe reactions.
5. Virus-neutralizing substances can be demonstrated in the serum of vaccinated guinea pigs, rabbits, and man.
6. The course and outcome of a case of Rocky Mountain spotted fever developing eight days after the first dose of vaccine suggests that the infection was modified.

RELATIVE VALUES OF METHODS OF ENUMERATING BACTERIA IN AIR ¹

By W. J. McCONNELL, Passed Assistant Surgeon (R.), United States Public Health Service, Surgeon, United States Bureau of Mines, and B. G. H. THOMAS, Junior Pathologist, United States Bureau of Mines.

Several practical and efficient instruments for collecting dusts in various atmospheres have been perfected during the past few years, and the Bureau of Mines was requested to compare some of these methods as to their efficiency in collecting bacteria in the air. Experiments were conducted with four different methods, and results were compared with the standard sand method ² approved by the Committee on Standard Methods for the Examination of Air.

¹ Work done in cooperation with U. S. Bureau of Mines.

² Final Report of the Committee on Standard Methods for the Examination of Air. Am. Jour. Pub. Health, vol. 7, 1917, p. 54.

Instruments Used and Operating Conditions

The instruments tested in these experiments were the Anderson-Armspach dust determinator,³ the Greenburg-Smith impinger,⁴ sugar tubes, and a modified water aeroscope. The aeroscope was devised by the junior writer and made by the Bureau of Mines at Pittsburgh. It consists essentially of a container and an aeroscope as illustrated in Figure 1:

In operating the instruments suction was obtained by using a rotary vane pump connected in such a manner that any amount of air could be drawn through the instrument. The amount of air passed through the filters was determined by the time and the rate of flow, a flowmeter being used between the pump and the instrument. One cubic foot per minute was the rate of flow of air used in the impinger method and 0.4 cubic foot per minute in the other methods.

All experiments were conducted under a hood. A suspension of bacteria was sprayed into the hood by means of an atomizer, which was attached to a positive pressure air line for a period of 10 seconds at the beginning of each experiment. The air in the hood was kept in motion while the samples were being taken. The organisms used were *Bacillus coli* and *Staphylococcus albus*.

The media used to grow the organisms was either beef-extract broth or beef-extract agar, containing 2.5 per cent agar, adjusted to hydrogen ion concentration of pH 7.4. The cultures were incubated at 37° C. for 3 days before they were recorded.

In order to obtain comparable results for the different methods used on any one day, they were alternated so that the average conditions would be approximately the same.

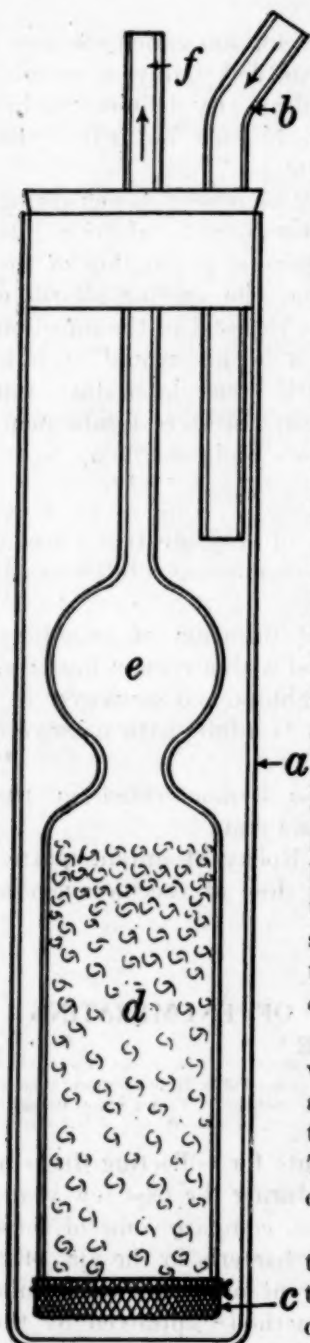


FIG. 1.—Bacterial aeroscope

³ Ingels, Margaret: New Data on Air Dust Determinations. Jour. Am. Soc. Heat. and Vent. Engrs., March, 1923, February, 1924, and January, 1925.

⁴ Greenburg, L. and Smith, G. W.: A New Instrument for Sampling Aerial Dust. Bureau of Mines Report of Investigations. Serial No. 2392, 922.

DESCRIPTION OF AND PROCEDURE WITH WATER AEROSCOPE

The container *a* consists of a cylindrical glass tube 240 mm. in length and 50 mm. in diameter, closed at the bottom and fitted at the top with a rubber stopper through which two openings were made for the insertion of tubes *b* and *f*. The inner tube is also glass and consists of a lower portion *d*, which is 105 mm. in length and 30 mm. in diameter and contains water. The upper portion of the tube is constricted to a diameter of 10 mm. and expands into the trap *e*, which is 35 mm. in diameter. This in turn continues into the exit tube *f*, which is 100 mm. in length and 6 mm. in diameter. The lower end of the tube is covered with a piece of Japanese silk *c* and fastened by means of a cord to the edge of the tube. The small curves in tube *d* represent the water broken up into bubbles when the apparatus is in use. The intake tube *b* is 6 mm. in diameter and 105 mm. in length, of which the upper 35 mm. was bent at an angle of 45°.

In preparing the water aeroscope for use, approximately 25 c. c. of distilled water was put into the container *a*, and the openings *b* and *f* were plugged with cotton. It was then sterilized in an autoclave for 20 minutes at 15 to 18 pounds pressure. Before using the instrument the cotton plugs were removed and tube *f* was connected by means of rubber tubing to a suction device. The air was drawn through the inlet tube *b* and through the water in the container, which in turn was lifted into tube *d* as a foamy mass. The bacteria are caught in the bubbling water. At the end of the test 1 c. c. of the water was plated out in a petri dish and the volume of the remainder was determined. This amount, plus the 1 c. c. removed, gave the dilution factor to be used in conjunction with the volume of air filtered when calculating the number of organisms in the air.

PROCEDURE WITH AIR DUST DETERMINATOR

When using the air dust determinator the pressure gage was disconnected and the A. D. Little quantitative filter paper was sterilized. The paper was treated in the following manner in order not to render it brittle: Each sheet was wrapped in a newspaper, autoclaved at 15 to 18 pounds pressure for 15 minutes and then dried at 37° C. dry heat. In a few preliminary experiments, five consecutively numbered sheets were used simultaneously, and these were sterilized in one package. The filter paper was handled only with sterile instruments.

Cultures were made from the central area, 2 cm. square, of each sheet. In the quantitative experiments, these squares of paper were placed in a sterile 100 c. c. Erlenmeyer flask containing 10 c. c. of distilled water. The contents of the flask were repeatedly shaken for 30 minutes in order to set the bacteria free; 1 c. c. of this water

was plated as in a water examination for bacteria. The three factors used for calculating the number of organisms were as follows: The proportional area of the exposed paper that was cultured, the dilution factor, and the volume of air filtered.

PROCEDURE WITH SAND AEROSCOPE

Samples of air containing bacteria were collected with the sand aeroscope, as recommended in the final report of the Committee of Standard Methods for the Examination of Air. The sand used had a fineness of 100 to 200 mesh and was sterilized at 165° C. dry heat for 60 minutes. Following the collection, the sand was poured into a small sterile Erlenmeyer flask containing 10 c. c. of distilled water. The mixture was repeatedly shaken for a period of 30 minutes, and 1 c. c. of the bacteria-laden water was cultured.

PROCEDURE WITH SUGAR AEROSCOPE

In a few experiments the sand was replaced by granulated sugar (saccharose). These experiments proved very unsatisfactory on account of the difficulty of sterilizing the sugar. When dry heat was used, the sugar became caramel, and with moist heat it became a solid homogenous white mass. This solid mass of sugar greatly impeded the flow of air and dissolved very slowly in distilled water from which cultures were made.

PROCEDURE WITH IMPINGER TUBE

The Greenburg-Smith impinger tube was next compared with the sand method. The same procedure was employed in collecting bacteria as is used in collecting dust, except that the tube was autoclaved. At the end of each test 1 c. c. of the sample was plated. The dilution factor was obtained by adding the amount used for culturing plus the volume of water remaining in the apparatus.

Comparative Tests

In using the dust determinator it was at first necessary to determine whether the paper would retain the organisms. Four or five sheets of filter paper numbered consecutively were used in the preliminary tests. The center square of each sheet was cultured separately in beef-broth extract. Table 1 illustrates the results of these tests.

TABLE 1.—*Results of tests of dust determinator to determine organisms retained by filter paper*

| Date | Experiment No. | The individual sheet that was positive | The individual sheets that were negative |
|--------------------|----------------|--|--|
| Aug. 3, 1923..... | F 1 | Fourth..... | First, third, and fifth (paper No. 2 dropped). |
| Do..... | F 2 | First..... | Second, third, fourth, and fifth. |
| Do..... | F 3 | do..... | Do. |
| Sept. 8, 1923..... | F 4 | do..... | Second, third, and fourth. |
| Do..... | F 5 | do..... | Do. |
| Do..... | F 6 | do..... | Do. |
| Do..... | F 7 | do..... | Do. |
| Do..... | F 8 | do..... | First, second, third, and fourth. |

It will be observed that the first filter paper retained all the bacteria, which leads us to the conclusion that if any bacteria escapes the first filter paper they pass also through the remaining sheets.

A group of experiments was next conducted in which the methods studied were compared with the sand method. On four occasions no bacteria were sprayed into the air, and the bacterial count was practically zero. The data of the sand, filter paper, water, and impinger methods are given in Table 2, with the exception of those from the sugar tube. Of the latter group only two experiments were conducted, as it was not found to be practicable because of the hardness of the sugar after steam sterilization and the formation of caramel when dry heat was used.

TABLE 2.—Results of various methods of collecting bacteria from air

| Date | Sand method | | | Filter-paper method | | | Modified water method | | | Impinger method | | |
|----------------|---------------------|----------------|--------------------------------|---------------------|----------------|--------------------------|-----------------------|----------------|--------------------------|---------------------|----------------|--------------------------|
| | Experi- ment No. | Plate count | Bacteria per cubic meter | Experi- ment No. | Plate count | Count per cubic meter | Experi- ment No. | Plate count | Count per cubic meter | Experi- ment No. | Plate count | Count per cubic meter |
| Nov. 27, 1923. | 1 F 1 | 0 | 0 | F 9 | 0 | 0 | | | | | | |
| | 1 F 2 | 0 | 0 | F 10 | 0 | 0 | | | | | | |
| | 1 F 3 | 0 | 0 | F 11 | 0 | 0 | | | | | | |
| | 1 F 4 | 2 | 141 | F 12 | 0 | 0 | | | | | | |
| Average..... | | 0.5 | 45 | | | | | | | | | |
| Nov. 30, 1923. | 1 F 5 | (1) | (1) | F 13 | (1) | (1) | | | | | | |
| | 1 F 6 | (1) | (1) | F 14 | (1) | (1) | | | | | | |
| | 1 F 7 | (1) | (1) | F 15 | (1) | (1) | | | | | | |
| | | (1) | (1) | F 16 | (1) | (1) | | | | | | |
| Average..... | | (1) | (1) | | | | | | | | | |
| Dec. 4, 1923. | 1 F 8 | 0 | 0 | F 17 | 0 | 0 | 11 F 1 | 2 | 140 | | | |
| | 1 F 9 | 0 | 0 | F 18 | 0 | 0 | | | | | | |
| Average..... | | 0 | 0 | | | | | 2 | 140 | | | |
| Dec. 7, 1923. | 1 F 10 | 221 | 15,000 | F 19 | 1,600 | 537,000 | 11 F 2 | (1) | (1) | | | |
| Average..... | | 221 | 15,000 | | 1,600 | 537,000 | | (1) | (1) | | | |
| Dec. 10, 1923. | 1 F 11 | 175 | 15,400 | F 20 | 210 | 70,500 | 11 F 3 | 220 | 155,000 | | | |
| | 1 F 12 | 34 | 3,400 | F 21 | 91 | 30,500 | | | | | | |
| Average..... | | 105 | 8,900 | | 150 | 55,000 | | 220 | 155,000 | | | |
| Dec. 11, 1923. | 1 F 13 | 24 | 1,080 | F 22 | 323 | 108,000 | 11 F 4 | 521 | 71,500 | | | |
| | 1 F 14 | 232 | 10,400 | F 23 | 47 | 15,750 | 11 F 5 | 258 | 117,000 | | | |
| | 1 F 15 | 216 | 15,200 | F 24 | 364 | 122,000 | | | | | | |
| | 1 F 16 | 450 | 37,000 | F 25 | 308 | 105,000 | | | | | | |
| Average..... | | 280 | 17,570 | | 290 | 87,940 | | 389 | 94,250 | | | |
| Dec. 17, 1923. | 1 F 17 | 36 | 3,000 | F 26 | 82 | 27,500 | 11 F 6 | 149 | 105,000 | | | |
| | 1 F 18 | 340 | 30,900 | F 27 | 155 | 52,000 | 11 F 7 | 128 | 95,000 | | | |
| Average..... | | 192 | 16,950 | | 118 | 39,750 | | 188 | 100,000 | | | |
| Dec. 18, 1923. | 1 F 19 | 5 | 330 | F 28 | 39 | 13,100 | 11 F 9 | 267 | 141,000 | | | |
| | 1 F 20 | 20 | 1,400 | F 29 | 83 | 27,700 | 11 F 10 | 584 | 61,900 | | | |
| | 1 F 21 | 69 | 4,870 | F 30 | 78 | 26,100 | 11 F 11 | 758 | 80,300 | | | |
| Average..... | | 31 | 2,206 | | 67 | 22,300 | | 536 | 94,060 | | | |

| | | | | | | | | | |
|-------------------|-------------|-----|--------|--------------|-------|---------|--------------|---|-------|
| Jan 24, 1924..... | 1 F 22..... | 0 | 0 | 11 F 12..... | 0 | 0 | IV F 1..... | 0 | 0 |
| | 1 F 23..... | 0 | 0 | 11 F 13..... | 0 | 0 | IV F 2..... | 0 | 0 |
| | 1 F 24..... | 5 | 424 | 11 F 14..... | 0 | 0 | ..... | 0 | 0 |
| Average..... | | 2 | 141 | | | | | | |
| Apr 29, 1924..... | 1 F 25..... | 1 | 88 | 11 F 15..... | 1,096 | 126,000 | IV F 3..... | 0 | 0 |
| | 1 F 26..... | 0 | 0 | 11 F 16..... | 214 | 37,900 | IV F 4..... | 0 | 0 |
| | 1 F 27..... | 1 | 88 | 11 F 17..... | 11 | 2,050 | ..... | 0 | 0 |
| Average..... | | 1 | 58 | | 440 | 55,320 | ..... | 0 | 0 |
| May 1, 1924..... | 1 F 28..... | 0 | 0 | 11 F 18..... | 0 | 0 | IV F 5..... | 0 | 0 |
| | 1 F 29..... | 0 | 0 | 11 F 19..... | 0 | 0 | IV F 6..... | 0 | 0 |
| Average..... | | 0 | 0 |  |  |  | ..... | 0 | 0 |
| May 5, 1924..... | 1 F 30..... | 36 | 3,160 | 11 F 20..... | 108 | 21,000 | IV F 7..... | 2 | 3,070 |
| | 1 F 31..... | 77 | 6,780 | 11 F 21..... | 684 | 78,400 | IV F 8..... | 4 | 6,500 |
| Average..... | | 56 | 4,970 | | 396 | 49,700 | ..... | 3 | 4,785 |
| May 9, 1924..... | 1 F 32..... | 20 | 1,760 | 11 F 22..... | () | () | IV F 9..... | 1 | 1,235 |
| | 1 F 33..... | 320 | 28,300 | 11 F 23..... | () | () | IV F 10..... | 2 | 3,300 |
| Average..... | | 170 | 15,030 | | () | () | IV F 10..... | 2 | 2,298 |

1 Too numerous to count.

It will be observed that the methods employing filter paper and water are approximately ten times more efficient than the standard sand method. The results of the impinger method indicate that it is not suitable for determining bacteria in the air. The organisms which were sprayed into the air were not recovered. On the three

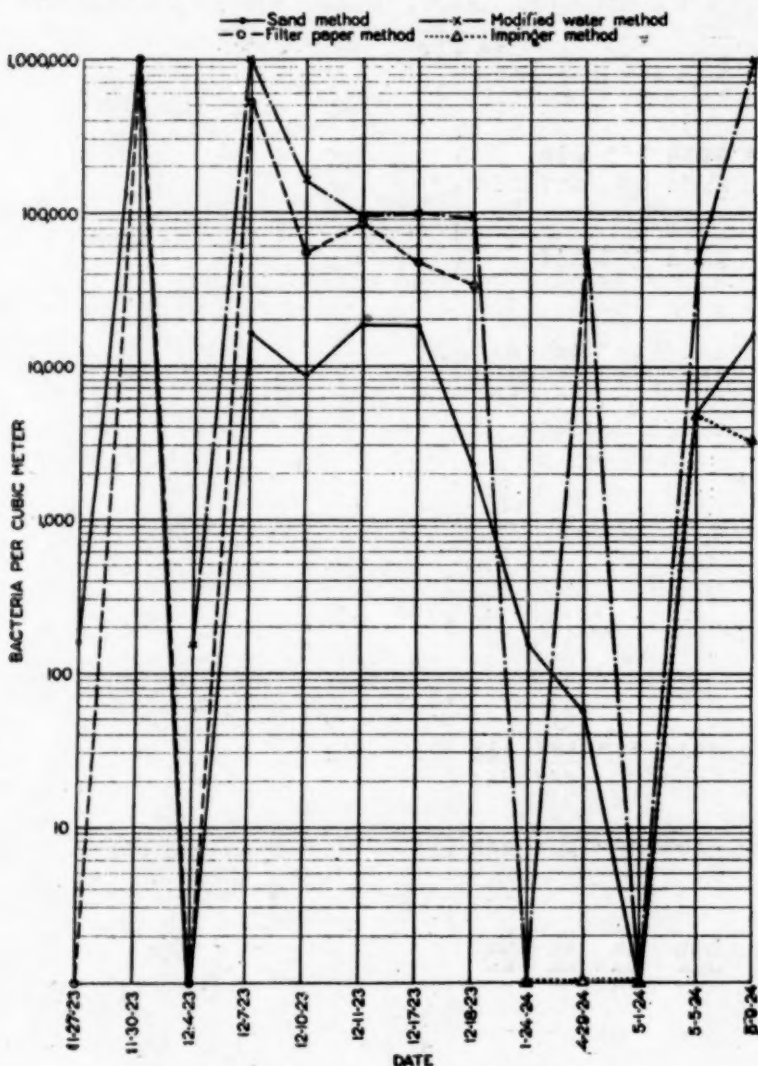


FIG. 2.—Average day's count per cubic meter for a given method

days when the impinger was used after a number of bacteria had been sprayed into the air, as shown by the water method, the plate count was either zero or not more than four. The colonies that grew on the plate were not of the organisms that were sprayed into the air.

In order to make more obvious the relative efficiency of the various methods, the average day's count for each method is plotted in Figure 2.

Test of Efficiency of Water Aeroscope

After completing the series of tests, a few experiments were conducted to determine, first, whether any bacteria passed through the modified water aeroscope, and second, whether the majority of organisms collected by the filter-paper method were in the center or in the periphery of the paper.

The first was determined by inserting a sterile cotton plug in the exit tube during the test, washing the cotton well in sterile water, and culturing 1 c. c. of the water. The results are given in Table 3.

TABLE 3.—Percentage of bacteria passing through the modified water aeroscope

| Experiment No. | Total count from aeroscope | Total count from cotton plug | Per cent passed through |
|----------------|----------------------------|------------------------------|-------------------------|
| 11 F 3..... | 4,400 | 30 | 0.68 |
| 11 F 4..... | 8,336 | 220 | 2.64 |
| 11 F 5..... | 3,854 | 20 | 0.59 |
| 11 F 7..... | 2,688 | 0 | 0.00 |
| 11 F 8..... | 4,968 | 10 | 0.20 |
| 11 F 9..... | 4,005 | 40 | 1.00 |
| Average..... | | | 0.85 |
| Total..... | 27,751 | 320 | 1.15 |

The number of organisms passing through the aeroscope is almost negligible. The average percentage passing through in the different experiments is 0.85 per cent, and the calculated percentage of the total count is 1.15 per cent, which is likewise negligible.

The second inquiry was determined by making a culture of both the center and the margin of the exposed filter paper. Two tests were conducted, and the results show that, in the first test, the margin contained only 85.4 per cent of the number of organisms found in the center of the paper, and in the second test, 83.8 per cent. While these two tests provide insufficient data to serve as a basis for conclusions, they indicate a possible error arising when culturing the small central area.

Advantages and Disadvantages of Instruments

FILTER PAPER

From a comparison of the results of the different methods of collecting bacteria from the air it is seen that the modified water aeroscope and the filter-paper methods are the more efficient. The latter has the advantage that, if the paper is placed in a sterile

container, it can be shipped with safety. It is probably not the most advantageous method for several reasons. First, it requires a special apparatus equipped with a filter-paper holder. Second, contamination may occur when the container is opened; when the paper is put in or removed from the machine and placed in the original container; and especially when nonsterile instruments or fingers are used in the handling of the filter paper. Third, preparation of the paper requires both moist sterilization and slow drying to prevent brittleness.

SAND AEROSCOPE

In contrast, the sterilization of the sand aeroscope is much simpler and can be performed in one operation. Moreover, the sand tube can be shipped by sealing the ends with a wax cap or a rubber tube and clamp. This method, however, requires grinding and sizing of the sand. Its greatest disadvantage is that it builds up a high resistance when using a rapid rate of flow.

MODIFIED WATER AEROSCOPE

The modified water aeroscope shares all the advantages and none of the disadvantages of the sand method. Likewise, the modified method possesses several advantages over Rettger's⁵ water aeroscope, which he claims to be as efficient as the sand method. In Rettger's aeroscope the air is drawn in a long narrow tube instead of a short one. This is an important feature, because Rettger found that bacteria clung to the inner wall of this long narrow tube. Second, the openings in his aeroscope are few and comparatively large as compared with the modified water aeroscope. The smaller openings of this instrument assure smaller air bubbles, and thus the contents of the bubbles are more easily moistened and consequently the bacteria will be more readily caught in the water. The greater total area of openings in the modified method permits the air to be drawn through it more than 10 times as rapidly as was considered practicable in the unmodified form which permits a liter of air per minute.

IMPINGER

The low counts obtained with the impinger indicate the difficulty in recovering the organisms used in these experiments when the rate of suction is 1 cubic foot per minute.

In an effort to seek an explanation why the organisms were not recovered with the impinger, our attention was attracted to the experiments conducted by Larson and his colleagues⁶ on the effect of high

⁵ Rettger Method of Determining Bacteria in the Air, Using Salt Solution. *Jour. Med. Research*, Vol. 22, June, 1910, pp. 461-468.

⁶ Larson, W. P., Hartzell, T. B., and Diehl, H. S.: The Effect of High Pressures on Bacteria. *Jour. of Infect. Dis.*, Vol. XXII (1918), pp. 271-279.

pressure on bacteria, and in particular his conclusion that the sudden release of the pressure, thereby changing the osmotic tension of the fluid in which the bacteria were suspended, was the factor which destroyed the organisms.

The impinger differs from the methods used by Larson in that instead of exerting a constant pressure and suddenly releasing, the suspension of organisms is impacted with a sudden increase in pressure and instantly released.

In an attempt to estimate the amount of pressure due to impact, Dr. M. D. Hersey, physicist of the Bureau of Mines, supplied the following comments on the problem:

"If the bacteria consist of soft particles of about the density of water and are caused to impinge against a metal surface at right angles to the air jet in which they are carried along in suspension, a certain amount of pressure will be developed during the moment of impact.

"A limiting case, which lends itself to calculation, may be described by assuming the metal plate to be perfectly rigid while the moving particle possesses no rigidity or resistance whatever to deformation. It will be assumed to act like a perfect liquid, free from viscosity or elasticity. In this case the impact pressure will be due solely to the inertia of the bacteria.

"Under the above conditions the formula required is

$$p = \frac{1}{2}\rho v^2$$

where p will come out in pounds per square foot if the density, ρ , is taken in slugs per cubic foot, while v is in feet per second (one slug = 32.2 pounds mass).

"Taking the density of the particle to be the same as water, about 1.9 slugs per cubic foot, and if the velocity is 370 feet per second (the air was found to leave the impinger nozzle at the rate of 373 feet per second), the formula above gives for the impact pressure about 130,000 pounds per square foot, which amounts to 900 pounds per square inch.

"In so far as the particle possesses internal rigidity or hardness, the true pressures experienced will be greater than those calculated above, approaching infinity if both the metal surface and the particle are assumed to be absolutely undeformable.

"Probably 1,000 pounds per square inch would be a conservative estimate of the impact pressure; and for velocities greater or less than 370 feet per second, the pressure would vary in proportion to the square of the speed."

A suggested explanation that, in the short process of the experiment, enough copper was dissolved from the brass plate of the impinger to kill the organisms was easily proved untenable by success-

fully growing cultures of bacteria after having left organisms in contact with the impinger plate 24 hours. It is likewise commonly known that brass plumbing does not prevent the growth of organisms.

The most plausible explanation lies in the hypothesis that the organisms (based on Larson's experiments) were killed in the collection by the impinger.

TESTING THE AEROSCOPE

There are several possible methods of testing an aeroscope. It is true that it is almost impossible to obtain strictly comparable results for the different methods if they are run parallel or alternately. If, however, a number of tests are made, the error due to dissimilar conditions becomes less when an average of each group is made. Ruhle,⁷ on the other hand, considered the proper method of testing to use the two tubes in tandem and thus determine the percentage of organisms that passed through the first tube. This method is very good provided that it is only a question of filtering and not one of enumerating the bacteria in the air. A given method may retain the organisms perfectly and yet the count may be far lower than it should be. This is due to two processes that are combined in determining the number of organisms in the air; one is catching the organisms and the other is setting them free in the media in which they are to be cultured. It is very probable that the organisms caught in the fine sand are not readily set free when the sand is poured into the water or a physiological salt solution. Thus, when a portion of the suspension is cultured, it does not give a true representative number of the organisms caught in the sand.

Conclusions

The experiments performed indicate that—

1. The modified water aeroscope is approximately ten times more efficient than the standard sand method. It is relatively free from error and contamination and is easily prepared.
2. The Anderson-Armstrong (filter paper) dust determinator is approximately ten times more efficient than the standard sand method, but is open to errors through contamination, and the method of preparing the filter paper is quite tedious.
3. The experiments conducted with the impinger indicate that this instrument is not suitable for enumerating the bacteria in air when the rate of flow is 1 cubic foot per minute.
4. The sugar tube is impractical as an aeroscope.

⁷ Ruhle, G. L. A.: Methods of Bacterial Analyses of Air. Jour. of Agricultural Research, Department of Agriculture, Vol. 4 (1915) p. 343.

DEATHS DURING WEEK ENDED SEPTEMBER 26, 1925

Summary of information received by telegraph from industrial insurance companies for week ended September 26, 1925, and corresponding week of 1924. (From the Weekly Health Index, September 29, 1925, issued by the Bureau of the Census, Department of Commerce)

| | Week ended Sept. 26, 1925 | Corresponding week, 1924 |
|---|------------------------------|-----------------------------|
| Policies in force..... | 60, 828, 114 | 57, 044, 556 |
| Number of death claims..... | 10, 180 | 9, 497 |
| Death claims per 1,000 policies in force, annual rate.. | 8. 7 | 8. 7 |

Deaths from all causes in certain large cities of the United States during the week ended September 26, 1925, infant mortality, annual death rate, and comparison with corresponding week of 1924. (From the Weekly Health Index, September 29, 1925, issued by the Bureau of the Census, Department of Commerce)

| City | Week ended Sept. 26, 1925 | | Annual death rate per 1,000 corre- sponding week, 1924 | Deaths under 1 year | | Infant mortality rate week ended Sept. 26, 1925 ¹ |
|-------------------------------|------------------------------|----------------------------|---|------------------------------------|-------------------------------------|--|
| | Total deaths | Death rate ¹ | | Week ended Sept. 26, 1925 | Corre- sponding week, 1924 | |
| Total (67 cities)..... | 5,750 | 10. 8 | ² 10. 9 | 893 | ³ 718 | ⁴ 76 |
| Akron..... | 32 | | | 7 | 5 | 78 |
| Albany ⁵ | 42 | 18. 3 | 13. 6 | 4 | 4 | 87 |
| Atlanta..... | 75 | | | 10 | 7 | |
| Baltimore ⁶ | 185 | 12. 1 | 10. 8 | 40 | 25 | 120 |
| Birmingham..... | 53 | 13. 4 | 14. 3 | 7 | 8 | |
| Boston..... | 171 | 11. 4 | 12. 4 | 27 | 29 | 71 |
| Bridgeport..... | 21 | | | 4 | 3 | 64 |
| Buffalo..... | 127 | 12. 0 | 14. 2 | 23 | 24 | 93 |
| Cambridge..... | 18 | 8. 3 | 14. 0 | 2 | 5 | 34 |
| Camden..... | 27 | 10. 9 | 11. 6 | 4 | 5 | 64 |
| Canton..... | 12 | 5. 9 | 6. 1 | 2 | 1 | 42 |
| Chicago ⁶ | 576 | 10. 0 | 10. 2 | 95 | 76 | 84 |
| Cincinnati..... | 108 | 13. 8 | 14. 3 | 20 | 15 | 118 |
| Cleveland..... | 171 | 9. 5 | 8. 2 | 24 | 25 | 60 |
| Columbus..... | 69 | 12. 9 | 13. 4 | 17 | 8 | 156 |
| Dallas..... | 38 | 10. 2 | 12. 5 | 7 | 6 | |
| Dayton..... | 23 | 6. 9 | 8. 3 | 5 | 4 | 79 |
| Denver..... | 78 | 14. 5 | 15. 8 | 20 | 11 | |
| Des Moines..... | 25 | 8. 7 | 9. 0 | 3 | 2 | 51 |
| Detroit..... | 210 | | | 50 | 40 | 86 |
| Duluth..... | 20 | 9. 4 | 7. 7 | 4 | 1 | 86 |
| El Paso..... | 29 | 14. 4 | 12. 4 | 6 | 6 | |
| Erie..... | 19 | | | 5 | 5 | 97 |
| Fall River ⁶ | 25 | 10. 8 | 12. 5 | 3 | 5 | 43 |
| Flint..... | 23 | 9. 2 | 7. 1 | 7 | 4 | 111 |
| Fort Worth..... | 26 | 8. 9 | 9. 9 | 3 | 5 | |
| Grand Rapids..... | 33 | 11. 3 | 9. 8 | 5 | 2 | 79 |
| Houston..... | 36 | 11. 4 | 12. 1 | 3 | 7 | |
| Indianapolis..... | 74 | 10. 8 | 11. 6 | 8 | 11 | 57 |
| Kansas City, Kans..... | 27 | 11. 4 | 9. 0 | 4 | 1 | 84 |
| Kansas City, Mo..... | 85 | 12. 1 | 10. 4 | 9 | 12 | |
| Los Angeles..... | 181 | | | 9 | 17 | 25 |
| Louisville..... | 90 | 18. 1 | 15. 9 | 8 | 7 | 70 |
| Lowell..... | 28 | 12. 5 | 14. 4 | 8 | 4 | 139 |
| Lynn..... | 15 | 7. 5 | 9. 6 | 3 | 1 | 80 |
| Memphis..... | 65 | 10. 4 | 12. 7 | 5 | 3 | |
| Milwaukee..... | 80 | 8. 3 | 9. 5 | 15 | 12 | 70 |
| Minneapolis..... | 81 | 9. 9 | 10. 2 | 7 | 7 | 37 |
| Nashville ⁶ | 25 | 9. 6 | 12. 3 | 2 | 2 | |
| New Bedford..... | 24 | 9. 3 | 8. 3 | 5 | 5 | 83 |
| New Haven..... | 32 | 9. 3 | 9. 5 | 5 | 8 | 65 |
| New Orleans..... | 130 | 17. 4 | 15. 8 | 17 | 17 | |

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1924. Cities left blank are not in the registration area for births.

³ Data for 66 cities.

⁴ Data for 62 cities.

⁵ Deaths for week ended Friday, Sept. 25, 1925.

Deaths from all causes in certain large cities of the United States during the week ended September 26, 1925, infant mortality, annual death rate, and comparison with corresponding week of 1924—Continued

| City | Week ended Sept. 26, 1925 | | Annual death rate per 1,000 corresponding week, 1924 | Deaths under 1 year | | Infant mortality rate week ended Sept. 26, 1925 |
|-----------------------------|---------------------------|------------|--|---------------------------|--------------------------|---|
| | Total deaths | Death rate | | Week ended Sept. 26, 1925 | Corresponding week, 1924 | |
| New York | 1,156 | 9.9 | 9.9 | 166 | 135 | 67 |
| Bronx Borough | 136 | 7.9 | 7.7 | 20 | 10 | 69 |
| Brooklyn Borough | 363 | 8.5 | 9.0 | 46 | 55 | 47 |
| Manhattan Borough | 509 | 11.8 | 11.2 | 77 | 60 | 80 |
| Queens Borough | 100 | 9.1 | 10.0 | 19 | 7 | 88 |
| Richmond Borough | 48 | 18.7 | 14.8 | 4 | 3 | 72 |
| Newark, N. J. | 91 | 10.5 | 10.4 | 15 | 17 | 68 |
| Norfolk | 34 | | | 5 | 4 | 92 |
| Oakland | 39 | 8.0 | 11.2 | 3 | 1 | 35 |
| Oklahoma City | 36 | | | 3 | 3 | |
| Omaha | 51 | 12.6 | 17.0 | 9 | 7 | 93 |
| Paterson | 28 | 10.3 | 9.3 | 1 | 3 | 17 |
| Philadelphia | 395 | 10.4 | 11.0 | 69 | 54 | 87 |
| Pittsburgh | 160 | 13.2 | 11.8 | 40 | 16 | 133 |
| Portland, Oreg. | 53 | 9.8 | 10.1 | 4 | 3 | 40 |
| Providence | 46 | 9.8 | 11.3 | 4 | 7 | 32 |
| Richmond | 43 | 12.0 | 12.5 | 14 | 5 | 167 |
| Rochester | 59 | 9.3 | 8.7 | 6 | 6 | 48 |
| St. Louis | 144 | 9.1 | 11.2 | 16 | 16 | |
| St. Paul | 44 | 9.3 | 11.5 | 3 | 8 | 25 |
| Salt Lake City ^a | 28 | 11.1 | 12.2 | 3 | 4 | 47 |
| San Antonio | 48 | 12.6 | 11.2 | 11 | 10 | |
| San Diego | 28 | 13.8 | 15.7 | 0 | 3 | 0 |
| San Francisco | 140 | 13.1 | 12.3 | 7 | 5 | 40 |
| Schenectady | 12 | 6.1 | 7.8 | 3 | 1 | 84 |
| Seattle | 64 | | | 3 | 7 | 29 |
| Somerville | 16 | 8.2 | 7.8 | 2 | 2 | 54 |
| Spokane | 24 | 11.5 | 11.5 | 5 | 2 | 112 |
| Springfield, Mass. | 26 | 8.9 | 11.9 | 3 | 1 | 45 |
| Syracuse | 38 | 10.3 | 10.8 | 9 | 3 | 113 |
| Tacoma | 28 | 14.0 | 7.6 | 1 | 0 | 23 |
| Toledo | 60 | 10.9 | 11.7 | 11 | 5 | 99 |
| Trenton | 31 | 12.2 | 12.5 | 3 | 6 | 49 |
| Utica | 35 | 17.0 | | 6 | | 129 |
| Washington, D. C. | 134 | 14.0 | 11.7 | 29 | 15 | 163 |
| Waterbury | 26 | | | 5 | 4 | 108 |
| Wilmington, Del. | 27 | 11.5 | 12.6 | 6 | 3 | 136 |
| Worcester | 45 | 11.8 | 7.5 | 8 | 3 | 92 |
| Yonkers | 9 | 4.2 | 5.2 | 0 | 2 | 0 |
| Youngstown | 33 | 10.8 | 8.7 | 9 | 7 | 111 |

^a Deaths for week ended Friday, Sept. 25, 1925.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended October 3, 1925

| ALABAMA | | CALIFORNIA | |
|-----------------------|-------|-------------------------------|-------|
| | Cases | | Cases |
| Chicken pox..... | 6 | Cerebrospinal meningitis: | |
| Dengue..... | 5 | Sacramento..... | 1 |
| Diphtheria..... | 41 | San Fernando..... | 1 |
| Influenza..... | 1 | Diphtheria..... | 77 |
| Malaria..... | 143 | Influenza..... | 5 |
| Measles..... | 3 | Measles..... | 17 |
| Mumps..... | 14 | Poliomyelitis: | |
| Pellagra..... | 20 | Berkeley..... | 1 |
| Pneumonia..... | 9 | Fresno..... | 1 |
| Scarlet fever..... | 22 | Los Angeles..... | 1 |
| Smallpox..... | 1 | Los Angeles County..... | 2 |
| Trachoma..... | 4 | Orange County..... | 1 |
| Tuberculosis..... | 62 | San Francisco..... | 2 |
| Typhoid fever..... | 61 | Stanislaus County..... | 1 |
| Whooping cough..... | 24 | Scarlet fever..... | 54 |
| | | Smallpox..... | 13 |
| | | Typhoid fever..... | 16 |
| ARIZONA | | COLORADO | |
| | Cases | (Exclusive of Denver) | |
| Diphtheria..... | 2 | Chicken pox..... | 10 |
| Measles..... | 2 | Diphtheria..... | 27 |
| Mumps..... | 1 | Measles..... | 4 |
| Tuberculosis..... | 6 | Mumps..... | 4 |
| Typhoid fever..... | 7 | Paratyphoid fever..... | 1 |
| Whooping cough..... | 20 | Pneumonia..... | 2 |
| | | Scarlet fever..... | 13 |
| | | Smallpox..... | 1 |
| | | Tuberculosis..... | 54 |
| | | Typhoid fever..... | 24 |
| | | Whooping cough..... | 13 |
| ARKANSAS | | CONNECTICUT | |
| | Cases | | Cases |
| Chicken pox..... | 3 | Cerebrospinal meningitis..... | 2 |
| Diphtheria..... | 4 | Chicken pox..... | 2 |
| Hookworm disease..... | 12 | Diphtheria..... | 18 |
| Influenza..... | 18 | German measles..... | 1 |
| Malaria..... | 142 | Influenza..... | 3 |
| Measles..... | 1 | | |
| Mumps..... | 4 | | |
| Pellagra..... | 11 | | |
| Scarlet fever..... | 3 | | |
| Trachoma..... | 3 | | |
| Tuberculosis..... | 21 | | |
| Typhoid fever..... | 44 | | |
| Whooping cough..... | 3 | | |

CONNECTICUT—continued

| | Cases |
|-------------------------------|-------|
| Measles..... | 22 |
| Pneumonia (broncho)..... | 11 |
| Pneumonia (lobar)..... | 15 |
| Poliomyelitis..... | 2 |
| Scarlet fever..... | 27 |
| Septic sore throat..... | 1 |
| Trichinosis..... | 2 |
| Tuberculosis (all forms)..... | 23 |
| Typhoid fever..... | 13 |
| Whooping cough..... | 69 |

DELAWARE

| | |
|--------------------|---|
| Diphtheria..... | 2 |
| Mumps..... | 1 |
| Pneumonia..... | 1 |
| Scarlet fever..... | 1 |
| Tuberculosis..... | 3 |
| Typhoid fever..... | 1 |

FLORIDA

| | |
|---------------------|----|
| Chicken pox..... | 1 |
| Dengue..... | 1 |
| Diphtheria..... | 28 |
| Malaria..... | 8 |
| Pneumonia..... | 3 |
| Tuberculosis..... | 11 |
| Typhoid fever..... | 14 |
| Whooping cough..... | 1 |

GEORGIA

| | |
|----------------------------------|----|
| Anchylostomiasis..... | 2 |
| Cerebrospinal meningitis..... | 1 |
| Chicken pox..... | 7 |
| Conjunctivitis (infectious)..... | 3 |
| Diphtheria..... | 20 |
| Dysentery..... | 13 |
| Influenza..... | 6 |
| Malaria..... | 72 |
| Mumps..... | 15 |
| Paratyphoid fever..... | 3 |
| Pellagra..... | 6 |
| Pneumonia..... | 17 |
| Poliomyelitis..... | 1 |
| Scarlet fever..... | 7 |
| Septic sore throat..... | 10 |
| Smallpox..... | 1 |
| Tuberculosis..... | 26 |
| Typhoid fever..... | 62 |
| Typhus fever..... | 1 |
| Whooping cough..... | 13 |

ILLINOIS

| | |
|--|-----|
| Diphtheria: | |
| Cook County..... | 50 |
| Sangamon County..... | 6 |
| Scattering..... | 22 |
| Influenza..... | 24 |
| Lethargic encephalitis—Winnebago County..... | 1 |
| Measles..... | 35 |
| Pneumonia..... | 106 |
| Poliomyelitis: | |
| Champaign County..... | 1 |
| Cook County..... | 4 |
| Edgar County..... | 1 |
| Fulton County..... | 3 |
| Hancock County..... | 1 |

ILLINOIS—continued

| | |
|-------------------------|-------|
| Poliomyelitis—Continued | Cases |
| Henry County..... | 2 |
| Iroquois County..... | 1 |
| Jackson County..... | 1 |
| Livingston County..... | 3 |
| Peoria County..... | 1 |
| Pike County..... | 1 |
| St. Clair County..... | 1 |
| Winnebago County..... | 1 |
| Woodford County..... | 1 |
| Scarlet fever..... | 109 |
| Smallpox: | |
| Jackson County..... | 3 |
| Scattering..... | 1 |
| Tuberculosis..... | 261 |
| Typhoid fever: | |
| Cook County..... | 12 |
| Iroquois County..... | 5 |
| Pulaski County..... | 8 |
| Saline County..... | 8 |
| Scattering..... | 31 |
| Whooping cough..... | 113 |

INDIANA

| | |
|---------------------|----|
| Chicken pox..... | 6 |
| Diphtheria..... | 52 |
| Influenza..... | 10 |
| Measles..... | 8 |
| Pneumonia..... | 4 |
| Poliomyelitis..... | 5 |
| Scarlet fever..... | 84 |
| Smallpox..... | 9 |
| Tuberculosis..... | 28 |
| Typhoid fever..... | 50 |
| Whooping cough..... | 42 |

IOWA

| | |
|-------------------------------|----|
| Cerebrospinal meningitis..... | 3 |
| Chicken pox..... | 10 |
| Diphtheria..... | 52 |
| Measles..... | 5 |
| Mumps..... | 1 |
| Pneumonia..... | 1 |
| Poliomyelitis..... | 16 |
| Scarlet fever..... | 27 |
| Smallpox..... | 4 |
| Tuberculosis..... | 1 |
| Typhoid fever..... | 11 |
| Whooping cough..... | 7 |

KANSAS

| | |
|---------------------------|----|
| Cerebrospinal meningitis: | |
| Cheney..... | 1 |
| Emporia..... | 1 |
| Scandia..... | 1 |
| Tonganoxie..... | 1 |
| Chicken pox..... | 19 |
| Diphtheria..... | 17 |
| Enteritis..... | 4 |
| German measles..... | 1 |
| Influenza..... | 1 |
| Measles..... | 3 |
| Mumps..... | 5 |
| Pneumonia..... | 7 |

| KANSAS—continued | | MASSACHUSETTS | |
|-------------------------------|-------|-----------------------------------|-------|
| Poliomyelitis: | Cases | | Cases |
| Arrington..... | 1 | Cerebrospinal meningitis..... | 1 |
| Corning..... | 1 | Chicken pox..... | 27 |
| Ellsworth..... | 1 | Conjunctivitis (suppurative)..... | 10 |
| Harris..... | 1 | Diphtheria..... | 84 |
| Kansas City..... | 1 | German measles..... | 6 |
| Marion..... | 1 | Influenza..... | 1 |
| Montrose..... | 1 | Lethargic encephalitis..... | 2 |
| Newell..... | 1 | Malaria..... | 1 |
| Salina..... | 1 | Measles..... | 130 |
| Topeka (rural)..... | 1 | Mumps..... | 13 |
| Wichita..... | 2 | Ophthalmia neonatorum..... | 10 |
| Winfield..... | 1 | Pneumonia (lobar)..... | 28 |
| Scarlet fever..... | 40 | Poliomyelitis..... | 7 |
| Tetanus..... | 1 | Scarlet fever..... | 94 |
| Tuberculosis..... | 71 | Septic sore throat..... | 1 |
| Typhoid fever..... | 51 | Tetanus..... | 1 |
| Vincent's angina..... | 1 | Trachoma..... | 2 |
| Whooping cough..... | 38 | Tuberculosis (pulmonary)..... | 81 |
| | | Tuberculosis (other forms)..... | 17 |
| | | Typhoid fever..... | 17 |
| | | Whooping cough..... | 150 |
| LOUISIANA | | MICHIGAN | |
| Diphtheria..... | 22 | Diphtheria..... | 71 |
| Influenza..... | 14 | Measles..... | 31 |
| Lethargic encephalitis..... | 1 | Pneumonia..... | 44 |
| Malaria..... | 46 | Scarlet fever..... | 106 |
| Pneumonia..... | 50 | Tuberculosis..... | 274 |
| Scarlet fever..... | 4 | Typhoid fever..... | 64 |
| Smallpox..... | 4 | Whooping cough..... | 133 |
| Tuberculosis..... | 55 | | |
| Typhoid fever..... | 34 | | |
| MAINE | | MINNESOTA | |
| Cerebrospinal meningitis..... | 1 | Cerebrospinal meningitis..... | 1 |
| Chicken pox..... | 13 | Chicken pox..... | 18 |
| Diphtheria..... | 2 | Diphtheria..... | 59 |
| Dysentery..... | 4 | Poliomyelitis..... | 58 |
| German measles..... | 6 | Scarlet fever..... | 86 |
| Measles..... | 1 | Smallpox..... | 2 |
| Mumps..... | 2 | Tuberculosis..... | 161 |
| Paratyphoid fever..... | 1 | Typhoid fever..... | 10 |
| Pneumonia..... | 3 | Whooping cough..... | 10 |
| Poliomyelitis..... | 1 | | |
| Scarlet fever..... | 10 | | |
| Tuberculosis..... | 4 | | |
| Typhoid fever..... | 27 | | |
| Vincent's angina..... | 1 | | |
| Whooping cough..... | 11 | | |
| MARYLAND ¹ | | MISSISSIPPI | |
| Chicken pox..... | 5 | Diphtheria..... | 32 |
| Diphtheria..... | 53 | Poliomyelitis..... | 2 |
| Dysentery..... | 11 | Scarlet fever..... | 13 |
| Influenza..... | 8 | Typhoid fever..... | 37 |
| Lethargic encephalitis..... | 3 | | |
| Measles..... | 11 | | |
| Meningitis (epidemic)..... | 1 | | |
| Mumps..... | 18 | | |
| Paratyphoid fever..... | 16 | | |
| Pneumonia (broncho)..... | 12 | | |
| Pneumonia (lobar)..... | 8 | | |
| Poliomyelitis..... | 1 | | |
| Scarlet fever..... | 32 | | |
| Septic sore throat..... | 2 | | |
| Tetanus..... | 2 | | |
| Tuberculosis..... | 53 | | |
| Typhoid fever..... | 66 | | |
| Whooping cough..... | 25 | | |
| | | MISSOURI | |
| | | Chicken pox..... | 6 |
| | | Diphtheria..... | 67 |
| | | Influenza..... | 5 |
| | | Measles..... | 3 |
| | | Mumps..... | 3 |
| | | Ophthalmia neonatorum..... | 3 |
| | | Pneumonia..... | 12 |
| | | Poliomyelitis..... | 7 |
| | | Scarlet fever..... | 6 |
| | | Septic sore throat..... | 2 |
| | | Smallpox..... | 2 |
| | | Trachoma..... | 7 |
| | | Tuberculosis..... | 82 |
| | | Typhoid fever..... | 26 |
| | | Whooping cough..... | 31 |

¹ Week ended Friday.

MONTANA

| | Cases |
|---------------------|-------|
| Chicken pox..... | 18 |
| Diphtheria..... | 3 |
| Measles..... | 2 |
| Pneumonia..... | 2 |
| Scarlet fever..... | 16 |
| Smallpox..... | 2 |
| Tuberculosis..... | 1 |
| Typhoid fever..... | 15 |
| Whooping cough..... | 23 |

NEW JERSEY

| | |
|---------------------|----|
| Anthrax..... | 1 |
| Chicken pox..... | 9 |
| Diphtheria..... | 70 |
| Influenza..... | 7 |
| Malaria..... | 3 |
| Measles..... | 20 |
| Pneumonia..... | 46 |
| Poliomyelitis..... | 5 |
| Scarlet fever..... | 46 |
| Typhoid fever..... | 33 |
| Whooping cough..... | 32 |

NEW MEXICO

| | |
|---------------------|----|
| Chicken pox..... | 2 |
| Conjunctivitis..... | 4 |
| Diphtheria..... | 3 |
| Mumps..... | 5 |
| Pellagra..... | 3 |
| Pneumonia..... | 2 |
| Poliomyelitis..... | 1 |
| Scarlet fever..... | 1 |
| Tuberculosis..... | 79 |
| Typhoid fever..... | 20 |
| Whooping cough..... | 6 |

NEW YORK

(Exclusive of New York City)

| | |
|-------------------------------|-----|
| Cerebrospinal meningitis..... | 1 |
| Diphtheria..... | 60 |
| Influenza..... | 44 |
| Lethargic encephalitis..... | 3 |
| Measles..... | 48 |
| Pneumonia..... | 88 |
| Poliomyelitis..... | 35 |
| Scarlet fever..... | 75 |
| Typhoid fever..... | 47 |
| Whooping cough..... | 175 |

NORTH CAROLINA

| | |
|-----------------------------|-----|
| Chicken pox..... | 5 |
| Diphtheria..... | 191 |
| Lethargic encephalitis..... | 1 |
| Measles..... | 1 |
| Poliomyelitis..... | 2 |
| Scarlet fever..... | 43 |
| Septic sore throat..... | 6 |
| Smallpox..... | 2 |
| Trachoma..... | 10 |
| Typhoid fever..... | 21 |
| Whooping cough..... | 60 |

¹ Deaths.

OKLAHOMA

(Exclusive of Tulsa and Oklahoma City)

| | Cases |
|---------------------|-------|
| Diphtheria..... | 23 |
| Influenza..... | 10 |
| Malaria..... | 52 |
| Measles..... | 1 |
| Mumps..... | 1 |
| Pellagra..... | 10 |
| Pneumonia..... | 3 |
| Poliomyelitis..... | 3 |
| Scarlet fever..... | 10 |
| Smallpox..... | 3 |
| Typhoid fever..... | 98 |
| Whooping cough..... | 11 |

OREGON

| | |
|---------------------|----|
| Chicken pox..... | 7 |
| Diphtheria..... | 10 |
| Influenza..... | 4 |
| Measles..... | 3 |
| Mumps..... | 10 |
| Pneumonia..... | 14 |
| Poliomyelitis..... | 2 |
| Scarlet fever..... | 24 |
| Smallpox..... | 3 |
| Tuberculosis..... | 12 |
| Typhoid fever..... | 7 |
| Whooping cough..... | 5 |

SOUTH DAKOTA

| | |
|---------------------|----|
| Chicken pox..... | 2 |
| Diphtheria..... | 8 |
| Measles..... | 1 |
| Mumps..... | 5 |
| Pneumonia..... | 1 |
| Poliomyelitis..... | 3 |
| Scarlet fever..... | 17 |
| Tuberculosis..... | 1 |
| Typhoid fever..... | 6 |
| Whooping cough..... | 2 |

TEXAS

| | |
|-----------------------------|----|
| Chicken pox..... | 1 |
| Diphtheria..... | 7 |
| Influenza..... | 2 |
| Lethargic encephalitis..... | 1 |
| Mumps..... | 5 |
| Pellagra..... | 2 |
| Poliomyelitis..... | 2 |
| Scarlet fever..... | 2 |
| Smallpox..... | 1 |
| Trachoma..... | 2 |
| Tuberculosis..... | 10 |
| Typhoid fever..... | 15 |
| Typhus fever..... | 2 |
| Whooping cough..... | 4 |

VERMONT

| | |
|---------------------|----|
| Chicken pox..... | 5 |
| Mumps..... | 50 |
| Poliomyelitis..... | 2 |
| Scarlet fever..... | 4 |
| Whooping cough..... | 3 |

| WASHINGTON | |
|-----------------------------|-------|
| | Cases |
| Chicken pox..... | 30 |
| Diphtheria..... | 18 |
| German measles..... | 2 |
| Measles..... | 2 |
| Mumps..... | 11 |
| Pneumonia..... | 2 |
| Poliomyelitis: | |
| Chelan County..... | 1 |
| Lewis County..... | 1 |
| Seattle..... | 1 |
| Skagit County..... | 2 |
| Spokane..... | 1 |
| Scarlet fever..... | 24 |
| Smallpox..... | 10 |
| Trachoma—Pierce County..... | 1 |
| Tuberculosis..... | 46 |
| Typhoid fever..... | 16 |
| Whooping cough..... | 8 |

| WEST VIRGINIA | |
|--------------------|---|
| Diphtheria..... | 4 |
| Scarlet fever..... | 2 |
| Typhoid fever: | |
| Huntington..... | 6 |
| Scattering..... | 5 |

| WISCONSIN | |
|-------------------------------|----|
| Milwaukee: | |
| Cerebrospinal meningitis..... | 1 |
| Chicken pox..... | 20 |
| Diphtheria..... | 15 |
| Influenza..... | 1 |
| Measles..... | 3 |

| WISCONSIN—continued | |
|-------------------------------|-------|
| Milwaukee—Continued. | Cases |
| Mumps..... | 3 |
| Pneumonia..... | 10 |
| Poliomyelitis..... | 2 |
| Scarlet fever..... | 11 |
| Tuberculosis..... | 13 |
| Whooping cough..... | 40 |
| Scattering: | |
| Cerebrospinal meningitis..... | 1 |
| Chicken pox..... | 10 |
| Diphtheria..... | 25 |
| German measles..... | 2 |
| Influenza..... | 21 |
| Lethargic encephalitis..... | 1 |
| Measles..... | 29 |
| Mumps..... | 22 |
| Pneumonia..... | 1 |
| Poliomyelitis..... | 20 |
| Scarlet fever..... | 55 |
| Smallpox..... | 2 |
| Tuberculosis..... | 11 |
| Typhoid fever..... | 14 |
| Whooping cough..... | 56 |

| WYOMING | |
|---------------------|----|
| Chicken pox..... | 1 |
| Diphtheria..... | 2 |
| Scarlet fever..... | 10 |
| Smallpox..... | 1 |
| Tuberculosis..... | 1 |
| Typhoid fever..... | 2 |
| Whooping cough..... | 2 |

Reports for Week Ended September 26, 1925

| DISTRICT OF COLUMBIA | |
|----------------------|-------|
| | Cases |
| Diphtheria..... | 8 |
| Measles..... | 3 |
| Pneumonia..... | 10 |
| Poliomyelitis..... | 2 |
| Scarlet fever..... | 8 |
| Tuberculosis..... | 22 |
| Typhoid fever..... | 3 |
| Whooping cough..... | 33 |

| NEBRASKA | |
|-------------------------------|----|
| Cerebrospinal meningitis..... | 1 |
| Chicken pox..... | 1 |
| Diphtheria..... | 5 |
| Mumps..... | 1 |
| Poliomyelitis..... | 12 |
| Scarlet fever..... | 6 |

| NEBRASKA—continued | |
|---------------------|-------|
| | Cases |
| Smallpox..... | 4 |
| Tetanus..... | 1 |
| Typhoid fever..... | 1 |
| Whooping cough..... | 14 |

| SOUTH CAROLINA | |
|---------------------|-----|
| Dengue..... | 10 |
| Diphtheria..... | 61 |
| Influenza..... | 39 |
| Malaria..... | 447 |
| Measles..... | 8 |
| Poliomyelitis..... | 6 |
| Scarlet fever..... | 11 |
| Tuberculosis..... | 45 |
| Typhoid fever..... | 63 |
| Whooping cough..... | 47 |

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

| State | Cerebro-spinal meningitis | Diphtheria | Influenza | Malaria | Measles | Pellagra | Polio-myelitis | Scarlet fever | Small-pox | Typhoid fever |
|---------------------|---------------------------|------------|-----------|---------|---------|----------|----------------|---------------|-----------|---------------|
| <i>August, 1925</i> | | | | | | | | | | |
| Kansas..... | 5 | 35 | 11 | 5 | 11 | 2 | 33 | 91 | 8 | 171 |
| Mississippi..... | 0 | 124 | 246 | 11,727 | 108 | 848 | 8 | 40 | 67 | 737 |
| Montana..... | 1 | 13 | ----- | ----- | 3 | ----- | 15 | 34 | 13 | 40 |
| North Dakota..... | 1 | 11 | 2 | ----- | 8 | ----- | 45 | 76 | 2 | 6 |
| Oregon..... | 5 | 62 | 2 | ----- | 5 | ----- | 3 | 30 | 11 | 48 |
| South Carolina..... | ----- | 221 | 179 | 1,679 | 5 | 4 | 1 | 29 | 15 | 363 |
| South Dakota..... | ----- | 18 | ----- | ----- | 7 | ----- | 5 | 84 | 1 | 31 |
| Virginia..... | 4 | 158 | 678 | 248 | 111 | 21 | 17 | 71 | 7 | 394 |
| West Virginia..... | 3 | 67 | 70 | ----- | 21 | ----- | 4 | 84 | 30 | 294 |
| Wyoming..... | ----- | 6 | 3 | ----- | 2 | ----- | 5 | 23 | 1 | 9 |

RECIPROCAL NOTIFICATIONS, JUNE, 1925

Notifications regarding communicable diseases sent during the month of August, 1925, to other State health departments by departments of health of certain States

| Referred by— | Diphtheria | Malaria | Measles | Paratyphoid | Polio-myelitis | Scarlet fever | Small-pox | Tetanus | Tuberculosis | Typhoid |
|--------------------|------------|---------|---------|-------------|----------------|---------------|-----------|---------|--------------|---------|
| Connecticut..... | ----- | ----- | ----- | 1 | ----- | 1 | ----- | ----- | ----- | 4 |
| Illinois..... | ----- | 2 | ----- | ----- | 1 | ----- | 2 | ----- | 12 | 9 |
| Massachusetts..... | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | 2 |
| Minnesota..... | 1 | ----- | ----- | ----- | 1 | 1 | ----- | 1 | 35 | 2 |
| New Jersey..... | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | 2 |
| New York..... | 2 | ----- | 1 | 1 | 9 | 3 | ----- | ----- | ----- | 6 |
| Rhode Island..... | ----- | ----- | ----- | ----- | 3 | ----- | ----- | ----- | 1 | ----- |

PLAGUE-ERADICATIVE MEASURES IN THE UNITED STATES

The following items were taken from the reports of plague-eradication measures from the cities named:

Los Angeles, Calif.

Week ended Sept. 19, 1925:

| | |
|--|-------|
| Number of rats trapped..... | 2,497 |
| Number of rats found plague infected..... | 0 |
| Number of squirrels examined..... | 832 |
| Number of squirrels found plague infected..... | 0 |
| Number of mice trapped..... | 3,538 |
| Number of mice found plague infected..... | 0 |

Date of discovery of last plague-infected rodent, Aug. 22, 1925.

Date of last human case, Jan. 15, 1925.

Oakland, Calif.

(Including other East Bay communities)

Week ended Sept. 12, 1925:

| | |
|---|-----|
| Number of rats trapped..... | 663 |
| Number of rats found plague infected..... | 0 |

Totals:

| | |
|---|---------|
| Number of rats trapped Jan. 1, to Sept. 12, 1925..... | 67, 771 |
| Number of rats found plague infected..... | 21 |
| Number of squirrels examined May 1 to Aug. 1, 1925..... | 7, 277 |
| Number of squirrels found plague infected..... | 0 |

Week ended Sept. 19, 1925:

| | |
|---|-----|
| Number of rats trapped..... | 732 |
| Number of rats found plague infected..... | 0 |

Totals:

| | |
|--|---------|
| Number of rats trapped Jan. 1 to Sept. 19, 1925..... | 68, 503 |
| Number of rats found plague infected..... | 21 |

Date of discovery of last plague-infected rat, Mar. 4, 1925.

Date of last human case, Sept. 10, 1919.

*New Orleans, La.***Week ended Sept. 19, 1925:**

| | |
|---|--------|
| Number of vessels inspected..... | 29 |
| Number of inspections made..... | 39 |
| Number of vessels fumigated with cyanide gas..... | 13 |
| Number of rodents examined for plague..... | 2, 671 |
| Number of rodents found plague infected..... | 0 |

Totals, Dec. 5, 1924, to Sept. 19, 1925:

| | |
|--|----------|
| Number of rodents examined for plague..... | 171, 031 |
| Number of rodents found plague infected..... | 12 |

Date of discovery of last plague-infected rat, Jan. 17, 1925.

Date of last human case occurring in New Orleans, Aug. 20, 1920.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended September 19, 1925, 37 States reported 1,050 cases of diphtheria. For the week ended September 20, 1924, the same States reported 1,359 cases of this disease. One hundred cities, situated in all parts of the country and having an aggregate population of more than 28,800,000, reported 535 cases of diphtheria for the week ended September 19, 1925. Last year for the corresponding week they reported 638 cases. The estimated expectancy for these cities was 715 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-four States reported 274 cases of measles for the week ended September 19, 1925, and 297 cases of this disease for the week ended September 20, 1924. One hundred cities reported 162 cases of measles for the week this year, and 90 cases last year.

Poliomyelitis.—The health officers of 38 States reported 276 cases of poliomyelitis for the week ended September 19, 1925. The same States reported 278 cases for the week ended September 20, 1924.

Scarlet fever.—Scarlet fever was reported for the week as follows: Thirty-seven States—this year, 827 cases; last year, 1,119 cases; 100 cities—this year, 342 cases; last year, 462 cases; estimated expectancy, 354 cases.

Smallpox.—For the week ended September 19, 1925, 37 States reported 117 cases of smallpox. Last year for the corresponding week

they reported 188 cases. One hundred cities reported smallpox for the week as follows: 1925, 36 cases; 1924, 86 cases; estimated expectancy, 19 cases. One death from smallpox was reported during the week at Los Angeles, Calif.

Typhoid fever.—One thousand and fifty cases of typhoid fever were reported for the week ended September 19, 1925, by 36 States. For the corresponding week of 1924 the same States reported 815 cases of this disease. One hundred cities reported 279 cases of typhoid fever for the week this year and 197 cases for the corresponding week last year. The estimated expectancy for these cities was 249 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 100 cities as follows: 1925, 357 deaths; 1924, 309 deaths.

City reports for week ended September 19, 1925

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1915 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

| Division, State, and city | Population July 1, 1923, estimated | Chick- en pox, cases re- ported | Diphtheria | | Influenza | | Meas- les, cases re- ported | Mumps, cases re- ported | Pneu- monia, deaths re- ported |
|---------------------------|------------------------------------|---|---|------------------------|------------------------|-------------------------|---|----------------------------------|--|
| | | | Cases, esti- mated expec- tancy | Cases re- ported | Cases re- ported | Deaths re- ported | | | |
| NEW ENGLAND | | | | | | | | | |
| Maine: | | | | | | | | | |
| Portland..... | 73,129 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 2 |
| New Hampshire: | | | | | | | | | |
| Concord..... | 22,408 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Manchester..... | 81,383 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vermont: | | | | | | | | | |
| Barre..... | 10,008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Burlington..... | 23,613 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| Massachusetts: | | | | | | | | | |
| Boston..... | 770,400 | 8 | 33 | 15 | 0 | 0 | 4 | 1 | 16 |
| Fall River..... | 120,912 | 1 | 3 | 5 | 0 | 0 | 12 | 0 | 1 |
| Springfield..... | 144,227 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 |
| Worcester..... | 191,927 | 2 | 4 | 29 | 0 | 0 | 27 | 0 | 4 |
| Rhode Island: | | | | | | | | | |
| Pawtucket..... | 68,799 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Providence..... | 242,378 | 4 | 7 | 1 | 0 | 0 | 0 | 0 | 2 |
| Connecticut: | | | | | | | | | |
| Bridgeport..... | 143,555 | 0 | 5 | 4 | 0 | 0 | 1 | 0 | 0 |
| Hartford..... | 138,036 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| New Haven..... | 172,967 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| MIDDLE ATLANTIC | | | | | | | | | |
| New York: | | | | | | | | | |
| Buffalo..... | 536,718 | 0 | 16 | 3 | 0 | 1 | 2 | 0 | 8 |
| New York..... | 5,927,625 | 17 | 98 | 75 | 7 | 8 | 26 | 4 | 78 |
| Rochester..... | 317,867 | 1 | 3 | 2 | 0 | 0 | 4 | 0 | 4 |
| Syracuse..... | 184,511 | 0 | 5 | 0 | 0 | 0 | 0 | 3 | 0 |
| New Jersey: | | | | | | | | | |
| Camden..... | 124,157 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 |
| Newark..... | 438,699 | 4 | 8 | 10 | 1 | 0 | 3 | 1 | 4 |
| Trenton..... | 127,390 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 |

¹ Population Jan. 1, 1920.

City reports for week ended September 19, 1925—Continued

| Division, State, and city | Population July 1, 1923, estimated | Chick- en pox, cases re-ported | Diphtheria | | Influenza | | Meas- les, cases re-ported | Mumps, cases re-ported | Pneu- monia, deaths re-ported |
|---------------------------|------------------------------------|--------------------------------|---------------------------------|-----------------|-----------------|------------------|----------------------------|------------------------|-------------------------------|
| | | | Cases, esti- mated expec- tancy | Cases re-ported | Cases re-ported | Deaths re-ported | | | |
| MIDDLE ATLANTIC—CON. | | | | | | | | | |
| Pennsylvania: | | | | | | | | | |
| Philadelphia..... | 1,922,788 | 7 | 32 | 47 | 0 | 2 | 23 | 0 | 26 |
| Pittsburgh..... | 613,442 | 0 | 19 | 21 | 0 | 0 | 6 | 0 | 0 |
| Reading..... | 110,917 | 0 | 2 | 3 | 0 | 0 | 2 | 0 | 0 |
| Scranton..... | 140,636 | 0 | 3 | 6 | 0 | 0 | 1 | 0 | 0 |
| EAST NORTH CENTRAL | | | | | | | | | |
| Ohio: | | | | | | | | | |
| Cincinnati..... | 406,312 | 2 | 8 | 3 | 0 | 1 | 0 | 0 | 4 |
| Cleveland..... | 888,519 | 4 | 28 | 26 | 1 | 0 | 11 | 2 | 7 |
| Columbus..... | 261,082 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 2 |
| Toledo..... | 268,338 | 0 | 9 | 3 | 0 | 0 | 1 | 0 | 2 |
| Indiana: | | | | | | | | | |
| Fort Wayne..... | 93,573 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| Indianapolis..... | 342,718 | 0 | 15 | 2 | 0 | 0 | 5 | 0 | 1 |
| South Bend..... | 76,709 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 |
| Terre Haute..... | 68,939 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| Illinois: | | | | | | | | | |
| Chicago..... | 2,886,121 | 12 | 84 | 45 | 6 | 2 | 10 | 2 | 26 |
| Springfield..... | 61,833 | 3 | 1 | 1 | 0 | 0 | 0 | 2 | 1 |
| Michigan: | | | | | | | | | |
| Detroit..... | 995,668 | 2 | 43 | 13 | 3 | 3 | 0 | 1 | 16 |
| Flint..... | 117,968 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Rapids..... | 145,947 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wisconsin: | | | | | | | | | |
| Madison..... | 42,519 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| Milwaukee..... | 484,595 | 7 | 12 | 9 | 0 | 0 | 0 | 2 | 5 |
| Racine..... | 64,393 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| Superior..... | 139,671 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| WEST NORTH CENTRAL | | | | | | | | | |
| Minnesota: | | | | | | | | | |
| Duluth..... | 106,289 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 1 |
| Minneapolis..... | 400,125 | 5 | 19 | 36 | 0 | 2 | 1 | 4 | 4 |
| St. Paul..... | 241,891 | 2 | 13 | 11 | 0 | 0 | 0 | 0 | 6 |
| Iowa: | | | | | | | | | |
| Davenport..... | 61,262 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sioux City..... | 79,662 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Waterloo..... | 39,667 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Missouri: | | | | | | | | | |
| Kansas City..... | 351,819 | 0 | 7 | 2 | 1 | 1 | 1 | 1 | 5 |
| St. Joseph..... | 78,232 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| St. Louis..... | 803,853 | 0 | 27 | 13 | 0 | 0 | 2 | 0 | 0 |
| North Dakota: | | | | | | | | | |
| Fargo..... | 24,841 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 |
| Grand Forks..... | 14,547 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| South Dakota: | | | | | | | | | |
| Aberdeen..... | 15,829 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sioux Falls..... | 29,206 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| Nebraska: | | | | | | | | | |
| Lincoln..... | 58,761 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 2 |
| Omaha..... | 204,382 | 0 | 12 | 3 | 0 | 0 | 0 | 0 | 3 |
| Kansas: | | | | | | | | | |
| Topeka..... | 52,555 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Wichita..... | 79,261 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| SOUTH ATLANTIC | | | | | | | | | |
| Delaware: | | | | | | | | | |
| Wilmington..... | 117,728 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Maryland: | | | | | | | | | |
| Baltimore..... | 773,580 | 4 | 15 | 7 | 1 | 0 | 7 | 6 | 12 |
| Cumberland..... | 32,361 | 0 | 1 | 3 | 2 | 1 | 0 | 0 | 1 |
| Frederick..... | 11,301 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| District of Columbia: | | | | | | | | | |
| Washington..... | 1437,571 | 1 | 6 | 4 | 0 | 0 | 1 | 0 | 11 |
| Virginia: | | | | | | | | | |
| Lynchburg..... | 30,277 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Norfolk..... | 159,089 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| Richmond..... | 181,044 | 0 | 12 | 14 | 0 | 0 | 0 | 0 | 2 |
| Roanoke..... | 55,502 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 |
| West Virginia: | | | | | | | | | |
| Charleston..... | 45,597 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 |
| Huntington..... | 57,918 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 |
| Wheeling..... | 156,208 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 1 |

1 Population Jan. 1, 1920.

City reports for week ended September 19, 1925—Continued

| Division, State, and city | Population July 1, 1923, estimated | Chicken pox, cases reported | Diphtheria | | Influenza | | Measles, cases reported | Mumps, cases reported | Pneumonia, deaths reported |
|---------------------------|------------------------------------|-----------------------------|-----------------------------|----------------|----------------|-----------------|-------------------------|-----------------------|----------------------------|
| | | | Cases, estimated expectancy | Cases reported | Cases reported | Deaths reported | | | |
| SOUTH ATLANTIC—con. | | | | | | | | | |
| North Carolina: | | | | | | | | | |
| Raleigh..... | 29,171 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| Wilmington..... | 35,719 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| Winston-Salem..... | 56,230 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| South Carolina: | | | | | | | | | |
| Charleston..... | 71,245 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| Columbia..... | 39,688 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Greenville..... | 25,789 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 |
| Georgia: | | | | | | | | | |
| Atlanta..... | 222,963 | 0 | 6 | 4 | 7 | 0 | 0 | 3 | 6 |
| Brunswick..... | 15,937 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Savannah..... | 89,448 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| Florida: | | | | | | | | | |
| St. Petersburg..... | 24,403 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Tampa..... | 56,050 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| EAST SOUTH CENTRAL | | | | | | | | | |
| Kentucky: | | | | | | | | | |
| Covington..... | 57,877 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Louisville..... | 257,671 | 0 | 6 | 1 | 2 | 0 | 0 | 0 | 4 |
| Tennessee: | | | | | | | | | |
| Memphis..... | 170,067 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 4 |
| Nashville..... | 121,128 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 1 |
| Alabama: | | | | | | | | | |
| Birmingham..... | 195,901 | 0 | 5 | 5 | 1 | 0 | 0 | 0 | 6 |
| Mobile..... | 63,858 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| Montgomery..... | 45,383 | 0 | 1 | 2 | 0 | 0 | 1 | 3 | 0 |
| WEST SOUTH CENTRAL | | | | | | | | | |
| Arkansas: | | | | | | | | | |
| Fort Smith..... | 30,635 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Little Rock..... | 70,916 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Louisiana: | | | | | | | | | |
| New Orleans..... | 404,575 | 0 | 7 | 1 | 2 | 2 | 0 | 0 | 6 |
| Shreveport..... | 54,590 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oklahoma: | | | | | | | | | |
| Oklahoma..... | 101,150 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 2 |
| Tulsa..... | 102,018 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Texas: | | | | | | | | | |
| Dallas..... | 177,274 | 0 | 4 | 6 | 0 | 0 | 1 | 0 | 4 |
| Galveston..... | 46,877 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Houston..... | 154,970 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 1 |
| San Antonio..... | 184,727 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 |
| MOUNTAIN | | | | | | | | | |
| Montana: | | | | | | | | | |
| Billings..... | 16,927 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Great Falls..... | 27,787 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 0 |
| Helena..... | 12,037 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Missoula..... | 12,668 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Idaho: | | | | | | | | | |
| Boise..... | 22,806 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Colorado: | | | | | | | | | |
| Denver..... | 272,031 | 4 | 9 | 9 | 0 | 2 | 0 | 1 | 8 |
| Pueblo..... | 43,519 | 0 | 3 | 10 | 0 | 0 | 0 | 0 | 1 |
| Arizona: | | | | | | | | | |
| Phoenix..... | 33,899 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Utah: | | | | | | | | | |
| Salt Lake City..... | 126,241 | 2 | 2 | 3 | 0 | 0 | 0 | 5 | 2 |
| Nevada: | | | | | | | | | |
| Reno..... | 12,429 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PACIFIC | | | | | | | | | |
| Washington: | | | | | | | | | |
| Seattle..... | 1315,685 | 6 | 4 | 9 | 0 | 0 | 1 | 3 | 0 |
| Spokane..... | 104,573 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tacoma..... | 101,731 | 1 | 2 | 6 | 0 | 0 | 0 | 0 | 3 |
| Oregon: | | | | | | | | | |
| Portland..... | 273,621 | 2 | 4 | 5 | 0 | 0 | 0 | 2 | 3 |
| California: | | | | | | | | | |
| Los Angeles..... | 666,853 | 3 | 25 | 19 | 1 | 0 | 1 | 7 | 9 |
| Sacramento..... | 69,950 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 |
| San Francisco..... | 539,038 | 17 | 14 | 13 | 1 | 0 | 1 | 6 | 4 |

1 Population Jan. 1, 1920.

City reports for week ended September 19, 1925—Continued

| Division, State, and city | Scarlet fever | | Smallpox | | | Tuber- culosis, deaths reported | Typhoid fever | | | Whoop- ing cough, cases reported | Deaths, all causes |
|------------------------------|---|------------------------|---|------------------------|-------------------------|--|---|------------------------|-------------------------|--|--------------------------|
| | Cases, esti- mated expect- ancy | Cases re- ported | Cases, esti- mated expect- ancy | Cases re- ported | Deaths re- ported | | Cases, esti- mated expect- ancy | Cases re- ported | Deaths re- ported | | |
| NEW ENGLAND | | | | | | | | | | | |
| Maine: | | | | | | | | | | | |
| Portland | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2 | 22 |
| New Hampshire: | | | | | | | | | | | |
| Concord | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Manchester | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| Vermont: | | | | | | | | | | | |
| Barre | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Burlington | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Massachusetts: | | | | | | | | | | | |
| Boston | 12 | 7 | 0 | 0 | 0 | 9 | 4 | 3 | 0 | 37 | 163 |
| Fall River | 1 | 0 | 0 | 0 | 0 | 2 | 3 | 1 | 0 | 7 | 24 |
| Springfield | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 5 | 25 |
| Worcester | 3 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 14 | 36 |
| Rhode Island: | | | | | | | | | | | |
| Pawtucket | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13 |
| Providence | 3 | 2 | 0 | 0 | 0 | 5 | 2 | 1 | 1 | 2 | 50 |
| Connecticut: | | | | | | | | | | | |
| Bridgeport | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 18 |
| Hartford | 2 | 4 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 4 | 31 |
| New Haven | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 19 | 16 |
| MIDDLE ATLANTIC | | | | | | | | | | | |
| New York: | | | | | | | | | | | |
| Buffalo | 7 | 5 | 0 | 0 | 0 | 4 | 3 | 1 | 0 | 6 | 126 |
| New York | 34 | 22 | 0 | 0 | 0 | 175 | 47 | 40 | 3 | 50 | 1,104 |
| Rochester | 3 | 2 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 8 | 72 |
| Syracuse | 4 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 39 | 35 |
| New Jersey: | | | | | | | | | | | |
| Camden | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 4 | 16 |
| Newark | 4 | 7 | 0 | 0 | 0 | 1 | 2 | 3 | 0 | 22 | 59 |
| Trenton | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 1 | 0 | 0 | 27 |
| Pennsylvania: | | | | | | | | | | | |
| Philadelphia | 17 | 28 | 0 | 0 | 0 | 35 | 15 | 13 | 0 | 73 | 442 |
| Pittsburgh | 12 | 21 | 0 | 0 | 0 | | 5 | 8 | | 0 | |
| Reading | 1 | 4 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 13 | 25 |
| Scranton | 1 | 1 | 0 | 0 | 0 | | 1 | 0 | 0 | 0 | |
| EAST NORTH CENTRAL | | | | | | | | | | | |
| Ohio: | | | | | | | | | | | |
| Cincinnati | 6 | 3 | 0 | 0 | 0 | 8 | 2 | 0 | 1 | 3 | 109 |
| Cleveland | 11 | 8 | 0 | 0 | 0 | 16 | 5 | 5 | 1 | 55 | 176 |
| Columbus | 4 | 3 | 0 | 1 | 0 | 4 | 1 | 1 | 0 | 4 | 70 |
| Toledo | 5 | 1 | 0 | 0 | 0 | 2 | 3 | 8 | 0 | 3 | 64 |
| Indiana: | | | | | | | | | | | |
| Fort Wayne | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 0 | 14 |
| Indianapolis | 4 | 4 | 1 | 0 | 0 | 6 | 3 | 0 | 0 | 9 | 87 |
| South Bend | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 14 |
| Terre Haute | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 14 |
| Illinois: | | | | | | | | | | | |
| Chicago | 44 | 25 | 1 | 1 | 0 | 36 | 9 | 14 | 2 | 55 | 527 |
| Springfield | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 11 |
| Michigan: | | | | | | | | | | | |
| Detroit | 30 | 23 | 2 | 0 | 0 | 23 | 5 | 1 | 1 | 66 | 269 |
| Flint | 4 | 4 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 24 | 15 |
| Grand Rapids | 3 | 6 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 16 | 29 |
| Wisconsin: | | | | | | | | | | | |
| Madison | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 |
| Milwaukee | 14 | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 72 | |
| Racine | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 8 |
| Superior | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| WEST NORTH CENTRAL | | | | | | | | | | | |
| Minnesota: | | | | | | | | | | | |
| Duluth | 3 | 18 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 2 | 25 |
| Minneapolis | 10 | 13 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 2 | 71 |
| St. Paul | 5 | 10 | 1 | 0 | 0 | 4 | 2 | 3 | 1 | 14 | 60 |

¹ Pulmonary tuberculosis only.

City reports for week ended September 19, 1925—Continued

| Division, State, and city | Scarlet fever | | Smallpox | | | Tuber- cul- osis, deaths re- ported | Typhoid fever | | | Whoop- ing cough, cases re- ported | Deaths, all causes |
|------------------------------|---|------------------------|---|------------------------|-------------------------|--|---|------------------------|-------------------------|---|--------------------------|
| | Cases, esti- mated expect- ancy | Cases re- ported | Cases, esti- mated expect- ancy | Cases re- ported | Deaths re- ported | | Cases, esti- mated expect- ancy | Cases re- ported | Deaths re- ported | | |
| WEST NORTH CENTRAL—CON. | | | | | | | | | | | |
| Iowa: | | | | | | | | | | | |
| Davenport..... | 0 | 0 | 0 | 0 | ----- | ----- | 1 | 0 | ----- | 0 | ----- |
| Sioux City..... | 1 | 0 | 0 | 0 | ----- | ----- | 0 | 2 | ----- | 0 | ----- |
| Waterloo..... | 1 | 0 | 0 | 0 | ----- | ----- | 0 | 0 | ----- | 0 | ----- |
| Missouri: | | | | | | | | | | | |
| Kansas City..... | 3 | 3 | 0 | 0 | 0 | 6 | 3 | 2 | 0 | 12 | 92 |
| St. Joseph..... | 1 | 0 | 0 | 0 | ----- | ----- | 0 | 0 | ----- | 0 | ----- |
| St. Louis..... | 13 | 14 | 0 | 0 | 0 | 10 | 7 | 10 | 3 | 6 | 173 |
| North Dakota: | | | | | | | | | | | |
| Fargo..... | 1 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 5 |
| Grand Forks..... | 1 | 0 | 0 | 0 | ----- | ----- | 0 | 0 | ----- | 4 | ----- |
| South Dakota: | | | | | | | | | | | |
| Aberdeen..... | 1 | 2 | 0 | 0 | ----- | ----- | 1 | 0 | 0 | ----- | ----- |
| Sioux Falls..... | 1 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| Nebraska: | | | | | | | | | | | |
| Lincoln..... | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 12 |
| Omaha..... | 2 | 2 | 1 | 0 | 0 | 5 | 2 | 0 | 0 | 6 | 46 |
| Kansas: | | | | | | | | | | | |
| Topeka..... | 2 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 0 | 14 | 42 |
| Wichita..... | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 2 | 25 |
| SOUTH ATLANTIC | | | | | | | | | | | |
| Delaware: | | | | | | | | | | | |
| Wilmington..... | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 0 | 0 | 22 |
| Maryland: | | | | | | | | | | | |
| Baltimore..... | 6 | 1 | 0 | ----- | ----- | 14 | 12 | 13 | 1 | 54 | 198 |
| Cumberland..... | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 10 |
| Frederick..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| District of Colum- bia: | | | | | | | | | | | |
| Washington..... | 5 | 6 | 0 | 0 | 0 | 11 | 5 | 7 | 2 | 18 | 126 |
| Virginia: | | | | | | | | | | | |
| Lynchburg..... | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 9 |
| Norfolk..... | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 1 | ----- |
| Richmond..... | 4 | 4 | 0 | 0 | 0 | 4 | 2 | 2 | 0 | 7 | 52 |
| Roanoke..... | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 16 |
| West Virginia: | | | | | | | | | | | |
| Charleston..... | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 5 | 1 | 2 | 14 |
| Huntington..... | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 14 |
| Wheeling..... | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 20 |
| North Carolina: | | | | | | | | | | | |
| Raleigh..... | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 11 |
| Wilmington..... | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 8 |
| Winston-Salem..... | 1 | 2 | 1 | 6 | 0 | 4 | 2 | 0 | 0 | 7 | 15 |
| South Carolina: | | | | | | | | | | | |
| Charleston..... | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 2 | 0 | 0 | 23 |
| Columbia..... | 6 | 0 | 0 | 0 | ----- | ----- | 1 | 0 | ----- | 1 | ----- |
| Greenville..... | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 2 |
| Georgia: | | | | | | | | | | | |
| Atlanta..... | 5 | 0 | 0 | 0 | 0 | 4 | 3 | 9 | 1 | 2 | 66 |
| Brunswick..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Savannah..... | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 29 |
| Florida: | | | | | | | | | | | |
| St. Petersburg..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 |
| Tampa..... | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 23 |
| EAST SOUTH CENTRAL | | | | | | | | | | | |
| Kentucky: | | | | | | | | | | | |
| Covington..... | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | ----- |
| Louisville..... | 2 | 1 | 0 | 0 | 0 | 2 | 5 | 1 | 1 | 2 | 55 |
| Tennessee: | | | | | | | | | | | |
| Memphis..... | 1 | 1 | 0 | 0 | 0 | 5 | 5 | 19 | 2 | 7 | 67 |
| Nashville..... | 2 | 1 | 0 | 2 | 0 | 1 | 5 | 11 | 2 | 0 | 65 |
| Alabama: | | | | | | | | | | | |
| Birmingham..... | 4 | 6 | 0 | 5 | 0 | 3 | 6 | 1 | 2 | 1 | 50 |
| Mobile..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 22 |
| Montgomery..... | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 20 |

City reports for week ended September 19, 1925—Continued

| Division, State, and city | Cerebrospinal meningitis | | Lethargic encephalitis | | Pellagra | | Poliomyelitis (infantile paralysis) | | |
|---------------------------|--------------------------|--------|------------------------|--------|----------|--------|-------------------------------------|-------|--------|
| | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases, estimated expectancy | Cases | Deaths |
| EAST NORTH CENTRAL | | | | | | | | | |
| Ohio: | | | | | | | | | |
| Cleveland..... | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 6 | 3 |
| Illinois: | | | | | | | | | |
| Chicago..... | 0 | 0 | 3 | 2 | 0 | 0 | 5 | 5 | 0 |
| Michigan: | | | | | | | | | |
| Detroit..... | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| Wisconsin: | | | | | | | | | |
| Milwaukee..... | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| Racine..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| WEST NORTH CENTRAL | | | | | | | | | |
| Minnesota: | | | | | | | | | |
| Duluth..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Minneapolis..... | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 |
| St. Paul..... | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 |
| Missouri: | | | | | | | | | |
| Kansas City..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| St. Joseph..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| St. Louis..... | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Nebraska: | | | | | | | | | |
| Omaha..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 2 |
| Kansas: | | | | | | | | | |
| Topeka..... | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wichita..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| SOUTH ATLANTIC | | | | | | | | | |
| Maryland: | | | | | | | | | |
| Baltimore..... | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 |
| North Carolina: | | | | | | | | | |
| Raleigh..... | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| South Carolina: | | | | | | | | | |
| Charleston..... | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| EAST SOUTH CENTRAL | | | | | | | | | |
| Alabama: | | | | | | | | | |
| Birmingham..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Mobile..... | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Montgomery..... | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| WEST SOUTH CENTRAL | | | | | | | | | |
| Arkansas: | | | | | | | | | |
| Fort Smith..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Little Rock..... | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Louisiana: | | | | | | | | | |
| New Orleans..... | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 0 |
| Shreveport..... | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| MOUNTAIN | | | | | | | | | |
| Colorado: | | | | | | | | | |
| Denver..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| PACIFIC | | | | | | | | | |
| Washington: | | | | | | | | | |
| Seattle..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Spokane..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Oregon: | | | | | | | | | |
| Portland..... | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| California: | | | | | | | | | |
| Los Angeles..... | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 |
| Sacramento..... | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| San Francisco..... | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 2 | 0 |

The following table gives the rates per hundred thousand population for 104 cities for the 10-week period ended September 19, 1925. The population figures used in computing the rates were estimated as of July 1, 1923, as this is the latest date for which estimates are available. The 104 cities reporting cases had an estimated aggregate population of nearly 29,000,000, and the 96 cities reporting deaths had more than 28,000,000 population. The number of cities included in each group and the aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, July 12 to September 19, 1925—Annual rates per 100,000 population¹

DIPHTHERIA CASE RATES

| | Week ended— | | | | | | | | | |
|-------------------------|-------------|---------|-----------------|-----------------|---------|---------|-----------------|-----------------|------------------|-----------------|
| | July 18 | July 25 | Aug. 1 | Aug. 8 | Aug. 15 | Aug. 22 | Aug. 29 | Sept. 5 | Sept. 12 | Sept. 19 |
| 104 cities..... | 79 | 78 | ¹ 78 | ¹ 87 | 80 | 70 | ¹ 75 | ¹ 72 | ¹ 95 | ¹ 99 |
| New England..... | 62 | 62 | 62 | 82 | 92 | 52 | 42 | 45 | 77 | 144 |
| Middle Atlantic..... | 97 | 91 | 92 | 83 | 78 | 73 | 63 | 62 | 89 | ¹ 81 |
| East North Central..... | 73 | 68 | 74 | 101 | 72 | 55 | 72 | 61 | 75 | 81 |
| West North Central..... | 85 | 106 | 100 | 107 | 113 | 102 | 118 | 102 | ¹ 148 | 149 |
| South Atlantic..... | 26 | 45 | ¹ 50 | 55 | 73 | 63 | ¹ 72 | 112 | 127 | 94 |
| East South Central..... | 11 | 11 | 11 | 29 | 34 | 63 | 40 | 34 | 80 | 80 |
| West South Central..... | 28 | 70 | 46 | 23 | 51 | 60 | 97 | 32 | 125 | 60 |
| Mountain..... | 124 | 115 | 153 | ¹ 68 | 162 | 76 | 172 | 315 | 200 | 224 |
| Pacific..... | 99 | 104 | 67 | 148 | 84 | 104 | 110 | ¹ 80 | 78 | 136 |

MEASLES CASE RATES

| 104 cities..... | 159 | 105 | ¹ 73 | ¹ 53 | 48 | 31 | ¹ 28 | ¹ 22 | ¹ 23 | ¹ 30 |
|-------------------------|-----|-----|-----------------|-----------------|-----|----|-----------------|-----------------|-----------------|-----------------|
| New England..... | 261 | 216 | 186 | 132 | 129 | 97 | 89 | 52 | 94 | 112 |
| Middle Atlantic..... | 199 | 128 | 77 | 69 | 57 | 38 | 34 | 25 | 25 | ¹ 34 |
| East North Central..... | 191 | 119 | 72 | 47 | 37 | 19 | 22 | 21 | 17 | 24 |
| West North Central..... | 29 | 19 | 29 | 11 | 30 | 6 | 4 | 6 | ¹ 4 | 10 |
| South Atlantic..... | 148 | 95 | ¹ 71 | 45 | 43 | 35 | ¹ 25 | 24 | 23 | 16 |
| East South Central..... | 80 | 63 | 29 | 11 | 17 | 6 | 11 | 0 | 0 | 6 |
| West South Central..... | 0 | 5 | 0 | 0 | 9 | 9 | 0 | 0 | 5 | 5 |
| Mountain..... | 29 | 38 | 105 | ¹ 20 | 19 | 29 | 29 | 0 | 10 | 10 |
| Pacific..... | 64 | 20 | 35 | 29 | 20 | 12 | 6 | ¹ 28 | 9 | 15 |

SCARLET FEVER CASE RATES

| 104 cities..... | 61 | 57 | ¹ 56 | ¹ 53 | 59 | 53 | ¹ 46 | ¹ 56 | ¹ 53 | ¹ 63 |
|-------------------------|-----|-----|-----------------|-----------------|-----|-----|-----------------|-----------------|------------------|-----------------|
| New England..... | 80 | 72 | 75 | 102 | 84 | 92 | 70 | 47 | 65 | 62 |
| Middle Atlantic..... | 45 | 43 | 37 | 33 | 36 | 23 | 27 | 30 | 31 | ¹ 45 |
| East North Central..... | 67 | 67 | 64 | ¹ 52 | 58 | 58 | 48 | 62 | 61 | 62 |
| West North Central..... | 108 | 122 | 124 | 120 | 137 | 147 | 112 | 125 | ¹ 114 | 151 |
| South Atlantic..... | 47 | 16 | ¹ 35 | 22 | 41 | 43 | ¹ 41 | 59 | 57 | 39 |
| East South Central..... | 80 | 29 | 63 | 63 | 40 | 34 | 29 | 143 | 120 | 57 |
| West South Central..... | 23 | 32 | 31 | 56 | 70 | 51 | 19 | 37 | 32 | 42 |
| Mountain..... | 86 | 162 | 86 | ¹ 39 | 95 | 67 | 29 | 76 | 29 | 166 |
| Pacific..... | 61 | 46 | 49 | 64 | 87 | 44 | 70 | ¹ 52 | 38 | 67 |

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1923.

² Tampa, Fla., not included. Report not received at time of going to press.

³ Helena, Mont., not included.

⁴ Greenville, S. C., not included.

⁵ Spokane, Wash., not included.

⁶ Topeka, Kans., not included.

⁷ Newark, N. J., not included.

Summary of weekly reports from cities, July 12 to September 19, 1925—Annual rates per 100,000 population—Continued

SMALLPOX CASE RATES

| | Week ended— | | | | | | | | | |
|-------------------------|-------------|---------|-----------------|-----------------|---------|---------|-----------------|-----------------|----------------|----------------|
| | July 18 | July 25 | Aug. 1 | Aug. 8 | Aug. 15 | Aug. 22 | Aug. 29 | Sept. 5 | Sept. 12 | Sept. 19 |
| 104 cities..... | 15 | 10 | ¹ 10 | ¹ 9 | 7 | 6 | ¹ 8 | ¹ 5 | ¹ 8 | ¹ 7 |
| New England..... | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Middle Atlantic..... | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | ¹ 0 |
| East North Central..... | 10 | 8 | 4 | 6 | 3 | 2 | 8 | 5 | 2 | 2 |
| West North Central..... | 17 | 12 | 15 | 9 | 11 | 6 | 4 | 4 | ¹ 4 | 4 |
| South Atlantic..... | 8 | 16 | ¹ 2 | 2 | 2 | 4 | ¹ 12 | 2 | 12 | 12 |
| East South Central..... | 46 | 40 | 23 | 51 | 23 | 40 | 57 | 11 | 23 | 40 |
| West South Central..... | 14 | 5 | 5 | 14 | 9 | 5 | 14 | 5 | 5 | 5 |
| Mountain..... | 19 | 0 | 57 | ¹ 20 | 10 | 10 | 10 | 10 | 19 | 0 |
| Pacific..... | 119 | 67 | 84 | 67 | 67 | 44 | 29 | ¹ 40 | 44 | 49 |

TYPHOID FEVER CASE RATES

| | | | | | | | | | | |
|-------------------------|-----|-----|-----------------|------------------|-----|-----|-----------------|-----------------|-----------------|-----------------|
| 104 cities..... | 38 | 34 | ¹ 41 | ¹ 41 | 48 | 57 | ¹ 47 | ¹ 40 | ¹ 42 | ¹ 51 |
| New England..... | 32 | 22 | 22 | 27 | 40 | 32 | 27 | 30 | 35 | 30 |
| Middle Atlantic..... | 25 | 21 | 30 | 23 | 33 | 45 | 30 | 29 | 27 | ¹ 35 |
| East North Central..... | 12 | 8 | 10 | 21 | 19 | 31 | 28 | 19 | 22 | 19 |
| West North Central..... | 44 | 39 | 48 | 43 | 58 | 48 | 35 | 21 | ¹ 61 | 58 |
| South Atlantic..... | 55 | 53 | ¹ 66 | 59 | 91 | 110 | ¹ 94 | 61 | 51 | 110 |
| East South Central..... | 223 | 177 | 183 | 274 | 217 | 183 | 177 | 183 | 246 | 212 |
| West South Central..... | 134 | 172 | 178 | 130 | 102 | 134 | 111 | 176 | 74 | 167 |
| Mountain..... | 19 | 48 | 57 | ¹ 107 | 105 | 105 | 115 | 29 | 115 | 88 |
| Pacific..... | 32 | 29 | 46 | 17 | 44 | 64 | 55 | ¹ 31 | 29 | 29 |

INFLUENZA DEATH RATES

| | | | | | | | | | | |
|-------------------------|----|----|----------------|----------------|----|----|-----------------|----|----------------|----------------|
| 96 cities..... | 2 | 2 | ¹ 1 | ¹ 3 | 2 | 2 | ¹ 4 | 3 | ¹ 4 | ¹ 5 |
| New England..... | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 2 | 0 |
| Middle Atlantic..... | 2 | 3 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | ¹ 6 |
| East North Central..... | 3 | 1 | 0 | 3 | 3 | 1 | 4 | 3 | 7 | 4 |
| West North Central..... | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 2 | ¹ 0 | 7 |
| South Atlantic..... | 4 | 4 | ¹ 2 | 6 | 0 | 0 | 2 | 2 | 0 | 2 |
| East South Central..... | 0 | 6 | 0 | 6 | 6 | 11 | 6 | 0 | 6 | 6 |
| West South Central..... | 10 | 0 | 0 | 5 | 0 | 10 | 15 | 5 | 5 | 10 |
| Mountain..... | 0 | 10 | 0 | ¹ 0 | 10 | 10 | ¹ 10 | 19 | 29 | 20 |
| Pacific..... | 4 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 4 | 0 |

PNEUMONIA DEATH RATES

| | | | | | | | | | | |
|-------------------------|----|----|-----------------|-----------------|----|----|-----------------|-----|-----------------|-----------------|
| 96 cities..... | 57 | 50 | ¹ 61 | ¹ 56 | 63 | 55 | ¹ 64 | 73 | ¹ 63 | ¹ 63 |
| New England..... | 50 | 52 | 55 | 37 | 30 | 40 | 42 | 55 | 52 | 70 |
| Middle Atlantic..... | 63 | 52 | 65 | 65 | 73 | 65 | 65 | 84 | 68 | ¹ 62 |
| East North Central..... | 47 | 40 | 52 | 38 | 51 | 43 | 54 | 64 | 49 | 47 |
| West North Central..... | 55 | 42 | 42 | 53 | 44 | 31 | 53 | 33 | ¹ 38 | 46 |
| South Atlantic..... | 51 | 55 | ¹ 63 | 73 | 81 | 63 | 84 | 67 | 64 | 85 |
| East South Central..... | 74 | 63 | 74 | 69 | 63 | 80 | 69 | 143 | 154 | 86 |
| West South Central..... | 76 | 66 | 111 | 71 | 87 | 82 | 112 | 76 | 87 | 82 |
| Mountain..... | 86 | 57 | 76 | ¹ 29 | 57 | 67 | ¹ 76 | 86 | 38 | 117 |
| Pacific..... | 45 | 65 | 69 | 78 | 90 | 53 | 69 | 106 | 102 | 69 |

¹ Tampa, Fla., not included. Report not received at time of going to press.

² Helena, Mont., not included.

³ Greenville, S. C., not included.

⁴ Spokane, Wash., not included.

⁵ Topeka, Kans., not included.

⁶ Newark, N. J., not included.

Number of cities included in summary of weekly reports and aggregate population of cities in each group, estimated as of July 1, 1923

| Group of cities | Number of cities reporting cases | Number of cities reporting deaths | Aggregate population of cities reporting cases | Aggregate population of cities reporting deaths |
|-------------------------|----------------------------------|-----------------------------------|--|---|
| Total..... | 104 | 96 | 28,842,382 | 28,084,966 |
| New England..... | 12 | 12 | 2,098,746 | 2,098,746 |
| Middle Atlantic..... | 10 | 10 | 10,304,114 | 10,304,114 |
| East North Central..... | 16 | 16 | 6,976,567 | 6,976,567 |
| West North Central..... | 14 | 11 | 2,315,330 | 2,381,454 |
| South Atlantic..... | 22 | 22 | 2,566,901 | 2,566,901 |
| East South Central..... | 7 | 7 | 911,885 | 911,885 |
| West South Central..... | 8 | 6 | 1,124,564 | 1,023,013 |
| Mountain..... | 9 | 9 | 546,445 | 546,445 |
| Pacific..... | 6 | 3 | 1,797,830 | 1,275,841 |

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended September 12, 1925.—The following report for the week ended September 12, 1925, was transmitted by the Far Eastern Bureau of the Health Section of the League of Nations, located at Singapore, to the headquarters at Geneva:

| Port | Plague | | Cholera | | Small-pox | | Port | Plague | | Cholera | | Small-pox | |
|-------------------------|--------|--------|---------|--------|-----------|--------|--------------------|--------|--------|---------|--------|-----------|--------|
| | Cases | Deaths | Cases | Deaths | Cases | Deaths | | Cases | Deaths | Cases | Deaths | Cases | Deaths |
| Calcutta | 0 | 0 | 5 | 74 | 74 | | Yokohama | 0 | 0 | 18 | 0 | 0 | 0 |
| Bombay | 1 | 0 | 0 | 3 | 2 | | Simoneeki | 0 | 0 | 0 | 0 | 0 | 0 |
| Madras | 0 | 0 | 0 | 10 | 1 | | Moji | 0 | 0 | 0 | 0 | 0 | 0 |
| Rangoon | 21 | 0 | 0 | 0 | 1 | | Kobe | 0 | 0 | 6 | 0 | 0 | 0 |
| Karachi | 1 | 0 | 0 | 1 | 1 | | Osaka | 0 | 0 | 0 | 0 | 0 | 0 |
| Negapatam | 0 | 0 | 1 | 0 | 0 | | Keelung (Formosa) | 0 | 0 | 0 | 0 | 0 | 0 |
| Singapore | 0 | 0 | 0 | 0 | 0 | | Fou-San-Po (Korea) | 0 | 0 | 0 | 0 | 0 | 0 |
| Port Swettenham | 0 | 0 | 0 | 0 | 0 | | Adelaide | 0 | 0 | 0 | 0 | 0 | 0 |
| Peking | 0 | 0 | 0 | 0 | 0 | | Brisbane | 0 | 0 | 0 | 0 | 0 | 0 |
| Batavia | 0 | 0 | 0 | 0 | 0 | | Fremantle | 0 | 0 | 0 | 0 | 0 | 0 |
| Soerabaya | 0 | 0 | 0 | 1 | 0 | | Melbourne | 0 | 0 | 0 | 0 | 0 | 0 |
| Samarang | 0 | 0 | 0 | 0 | 0 | | Sydney | 0 | 0 | 0 | 0 | 0 | 0 |
| Belawan Deli | 0 | 0 | 0 | 5 | 4 | | Suez | 0 | 0 | 0 | 0 | 0 | 0 |
| Macassar | 0 | 0 | 0 | 0 | 0 | | Alexandria | 1 | 0 | 0 | 0 | 0 | 0 |
| Sendakan (North Borneo) | 0 | 0 | 0 | 0 | 0 | | Port Said | 0 | 0 | 0 | 0 | 0 | 0 |
| Kuching (Sarawak) | 0 | 0 | 0 | 2 | 0 | | Mombasa (Kenya) | 0 | 0 | 0 | 0 | 0 | 0 |
| Bangkok | 0 | 0 | 0 | 0 | 0 | | Massaua (Eritrea) | 0 | 0 | 0 | 0 | 0 | 0 |
| Saigon and Cholon | 0 | 1 | 0 | 0 | 0 | | Djibuti | 0 | 0 | 0 | 0 | 0 | 0 |
| Hongkong | 0 | 0 | 0 | 0 | 0 | | Lourenco Marques | 0 | 0 | 0 | 0 | 0 | 0 |
| Shanghai | 0 | 0 | 12 | 19 | 0 | | Durban | 0 | 0 | 0 | 0 | 0 | 0 |
| Manila | 0 | 0 | 0 | 0 | 0 | | Cape Town | 0 | 0 | 0 | 0 | 0 | 0 |
| Colombo | 0 | 0 | 0 | 0 | 0 | | Mauritius | 0 | 0 | 0 | 0 | 0 | 0 |
| Nagasaki | 0 | 0 | 0 | 0 | 0 | | Seychelles | 0 | 0 | 0 | 0 | 0 | 0 |

CANADA

Communicable diseases—Ontario—August, 1925 (comparative).—Communicable diseases were reported in the Province of Ontario, Canada, for the month of August, 1925, as follows:

| Disease | August, 1925 | | August, 1924 | | Disease | August, 1925 | | August, 1924 | |
|--------------------------|--------------|--------|--------------|--------|--------------------|--------------|--------|--------------|--------|
| | Cases | Deaths | Cases | Deaths | | Cases | Deaths | Cases | Deaths |
| Cerebrospinal meningitis | 4 | 1 | 9 | 5 | Pneumonia | 37 | 45 | | |
| Chancroid | 1 | | 1 | | Polionmyelitis | 19 | 3 | | |
| Chicken pox | 133 | | 133 | | Scarlet fever | 141 | 2 | 337 | 7 |
| Diphtheria | 244 | 10 | 269 | 16 | Septic sore throat | | | 3 | |
| German measles | 4 | | 15 | | Smallpox | 7 | 6 | | |
| Gonorrhea | 112 | | 175 | | Syphilis | 112 | 121 | | |
| Influenza | 2 | 2 | 18 | 3 | Tuberculosis | 133 | 44 | 156 | 74 |
| Lethargic encephalitis | 4 | 2 | 1 | 1 | Typhoid fever | 111 | 5 | 120 | 8 |
| Measles | 164 | | 879 | 3 | Whooping cough | 305 | 10 | 300 | 4 |
| Mumps | 43 | | 180 | | | | | | |

CHINA

Cholera—Shanghai.—Under date of August 22, 1925, cholera was reported prevalent at Shanghai, China, with an estimated number of about 100 new cases occurring daily in a population of about 1,250,000. The case mortality was stated to be approximately 60 per cent.

JAPAN

Cholera—Kawasaki, Tokyo, and Yokohama.—Information dated September 10, 1925, reports to that date the following number of authentic cases of cholera: Kawasaki, 1 case; Tokyo, 9 cases; Yokohama, 24 cases; and, according to press reports, the disease appeared to be spreading throughout the Kwanto and Kwansai districts.

The Japanese health authorities were stated to be handling the situation efficiently by means of examinations, vaccination, quarantine, and publicity through periodicals and posters. The water supplies of the various large cities had not been implicated.

Special measures as required by the United States quarantine regulations were being taken by service officers with regard to passengers on vessels sailing for United States ports.

Press reports state that, at Kobe, a Chinese steerage passenger suffering from cholera was taken from the steamship *President Lincoln* from Shanghai en route to Yokohama, Honolulu, and San Francisco, and that the vessel was held at pier for examination of all steerage passengers.

LITHUANIA

Smallpox—Typhoid fever—Typhus fever—January 1–June 30, 1925.—During the six-month period ended June 30, 1925, 4 cases of smallpox, 252 cases of typhoid fever (8 deaths), and 189 cases of typhus fever (10 deaths) were reported in Lithuania.

Scarlet fever, epidemic.—During the spring months of the period under report epidemic scarlet fever, with 665 cases, was reported in Lithuania. At Kovno, August 27, 1925, many cases were reported present.

Vaccination against smallpox and rabies.—At the Institute of Hygiene during the same period 53,500 vaccinations against smallpox and 160 against rabies were reported.

MADAGASCAR

Plague—July 16–31, 1925.—During the 16-day period ended July 31, 1925, 10 cases of plague, with 10 deaths, were reported in the island of Madagascar. The occurrence was in the Province of Tananarive. The cases were distributed according to type as follows: Pneumonic, 6 cases; septicemic, 4 cases.

MALTA

Lethargic encephalitis—Malta fever—Typhoid fever—August, 1925.—During the month of August, 1925, 2 cases of lethargic encephalitis, 90 cases of Malta (undulant) fever, and 27 cases of typhoid fever were reported in the island of Malta. Population, 223,088.

SPAIN

Mortality—Seville—Year 1924.—During the year 1924 a total of 5,278 deaths was reported at Seville, Spain, the largest number of deaths, viz, 474 and 565, respectively, being reported in the months of January and June. Tuberculosis and meningitis were stated to have been the chief causes of deaths, with 711 and 369 deaths, respectively, during the period under report. Population, 205,529.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended October 9, 1925¹

CHOLERA

| Place | Date | Cases | Deaths | Remarks |
|---------------|-----------------|-------|--------|--|
| China: | | | | |
| Shanghai..... | | | | Aug. 22, 1925: Prevalent with 100 new cases (estimated) daily. |
| India..... | | | | July 19-25, 1925: Cases, 2,013; deaths, 1,110. |
| Bombay..... | Aug. 9-15..... | 1 | | |
| Calcutta..... | Aug. 16-22..... | 8 | 7 | |
| Madras..... | Aug. 23-29..... | 4 | | |
| Rangoon..... | Aug. 9-15..... | 1 | 1 | |
| Japan..... | | | | Sept. 10, 1925: Spreading throughout Kwanto and Kwansai districts. |
| Kawasaki..... | Sept. 10..... | 1 | | |
| Tokyo..... | do..... | 9 | | |
| Yokohama..... | do..... | 24 | | |
| On vessel: | | 1 | | At Nagasaki. Reported Sept. 2, 1925, arrived on vessel from China. |

PLAGUE

| | | | | |
|----------------------------|---------------------|----|----|--|
| India..... | | | | July 19-25, 1925: Cases, 204; deaths, 143. |
| Bombay..... | Aug. 9-15..... | 3 | 2 | |
| Madras Presidency..... | Aug. 2-8..... | 18 | 6 | |
| Rangoon..... | Aug. 9-15..... | 28 | 23 | |
| Java: | | | | Batavia Province. |
| Batavia..... | Aug. 8-14..... | 28 | 26 | |
| Soerabaya..... | July 26-Aug. 1..... | 2 | 2 | |
| Madagascar..... | | | | July 16-31, 1925: Cases, 10; deaths, 10. |
| Tananarive Province..... | July 16-31..... | 10 | 10 | Pneumonic, 6; septicemic, 4. |
| On vessel: | | | | |
| S. S. City of Norwich..... | Apr. 15..... | 1 | | At Port Said, Egypt, Apr. 14, 1925, from Rangoon, Colombo, and Perim; destination, London. Case occurred in first officer of vessel. |

¹ From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended October 9, 1925—Continued

SMALLPOX

| Place | Date | Cases | Deaths | Remarks |
|-------------------------------------|------------------|-------|--------|--|
| Canada: Ontario | | | | Aug. 1-31, 1925: Cases, 7; corresponding period 1924, cases, 6 |
| China: Nanking | Aug. 23-29 | | | Prevalent. |
| Swatow | Aug. 16-22 | | | Endemic. |
| Egypt | | | | January-June, 1925: Cases, 341; deaths, 74. |
| Great Britain: England and Wales | Aug. 30-Sept. 5 | 32 | | |
| Newcastle-on-Tyne | Sept. 6-12 | 1 | | |
| India: Bombay | Aug. 9-15 | 1 | | July 19-25, 1925: Cases, 2,403; deaths, 515. |
| Calcutta | Aug. 16-22 | 4 | 4 | |
| Madras | Aug. 23-29 | 10 | 5 | |
| Rangoon | Aug. 9-15 | 2 | | |
| Indo-China: Saigon | Aug. 17-23 | 1 | 1 | Including 100 square kilometers of surrounding country. |
| Italy: Turin | Aug. 31-Sept. 6 | 2 | | |
| Java: Batavia | Aug. 8-14 | 4 | | Province. |
| Soerabaya | July 26-Aug. 1 | 97 | 11 | |
| Mexico: Guadalajara | Sept. 15-21 | | 1 | January - May, 1925: Deaths, 2,160. |
| Mexico City | Aug. 30-Sept. 5 | 1 | | Including municipalities in Federal District. |
| San Luis Potosi | Sept. 13-19 | | 1 | |
| Torreón | Aug. 1-31 | 2 | 2 | |
| Spain: Malaga | Aug. 30-Sept. 12 | | 8 | |

TYPHUS FEVER

| | | | | |
|--|-----------------|----|---|---|
| Great Britain: Scotland— Glasgow | Sept. 6-12 | 1 | | |
| Greenock | May | | 2 | |
| Egypt | | | | January - June, 1925: Cases, 1,011; deaths, 211. |
| Mexico: Mexico City | Aug. 30-Sept. 5 | 12 | | January-May, 1925: Deaths, 109. Including municipalities in Federal District. |

Reports Received from June 27 to October 2, 1925¹

CHOLERA

| Place | Date | Cases | Deaths | Remarks |
|---------------------|-----------------|-------|--------|--|
| Algeria: Algiers | May 11-20 | 1 | | |
| Ceylon: Do | | | | Jan. 25-June 27, 1925: Cases, 172; deaths, 120. |
| Colombo | May 10-16 | 2 | 2 | June 28-July 11, 1925: Cases, 19; deaths, 15. |
| China: Shanghai | July 26-Aug. 15 | 82 | 39 | |
| India: Bombay | May 10-June 27 | 2 | 1 | Apr. 26-June 27, 1925: Cases 33,647; deaths, 19,950. June 28-July 18, 1925: Cases, 5,468; deaths, 3,197. |
| Do | June 28-Aug. 8 | 10 | 7 | |
| Calcutta | May 3-9 | 58 | 49 | |
| Do | May 17-23 | 79 | 61 | |
| Do | June 14-20 | 12 | 11 | |
| Do | July 5-Aug. 15 | 56 | 44 | |
| Madras Presidency | June 6-20 | 4 | 1 | |
| Do | July 5-Aug. 22 | 17 | 10 | |
| Rangoon | May 3-June 6 | 22 | 15 | Feb. 8-14, 1925: Cases, 2; deaths, 2. (Received out of date.) |
| Do | June 14-27 | 12 | 8 | |
| Do | June 28-Aug. 8 | 4 | 5 | |

¹ From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 27 to October 2, 1925—Continued

CHOLERA—Continued

| Place | Date | Cases | Deaths | Remarks |
|------------------------|----------------------|-------|--------|--|
| Indo-China: | | | | |
| Saigon..... | May 4-June 7..... | 4 | 3 | Including 100 square kilometers of surrounding country. Do. |
| Do..... | June 22-July 12..... | 3 | 2 | |
| Do..... | Aug. 3-9..... | 1 | 1 | |
| Japan: | | | | |
| Kobe..... | Sept. 4-6..... | 5 | 2 | |
| Yokohama..... | Sept. 2..... | 5 | 3 | |
| Philippine Islands: | | | | |
| Albay— | | | | |
| Tabaco..... | June 14-20..... | 1 | 1 | |
| Bulacan..... | do..... | 1 | 1 | |
| Do..... | June 28-July 18..... | 3 | 2 | |
| Camarines Sur..... | July 3-9..... | 1 | 1 | |
| Lagonoy..... | June 6-12..... | 2 | 1 | |
| Leyte..... | July 8-14..... | 1 | 1 | |
| Manila..... | June 15-28..... | 3 | — | |
| Do..... | June 29-Aug. 16..... | 17 | 4 | June 1-Aug. 8, 1925: Cases, 17. |
| Mountain Province..... | June 23-29..... | 1 | 1 | |
| Rizal Province..... | Aug. 2-8..... | 2 | — | |
| Siam: | | | | |
| Bangkok..... | Apr. 29-June 27..... | 9 | 4 | |
| Turkey: | | | | |
| Constantinople..... | May 16-22..... | 1 | — | |

PLAGUE

| | | | | |
|----------------------|----------------------|----|----|--|
| Brazil: | | | | |
| Bahia..... | May 3-June 13..... | 5 | 4 | |
| British East Africa: | | | | |
| Uganda..... | Feb. 1-28..... | 28 | 28 | Apr. 1-May 31, 1925: Cases, 129; deaths, 118. |
| Entebbe..... | May 4-June 4..... | 78 | 73 | |
| Ceylon: | | | | |
| Colombo..... | May 10-June 30..... | 11 | 10 | |
| Do..... | June 28-July 25..... | 9 | 7 | |
| Do..... | Aug. 2-15..... | 2 | 2 | |
| China: | | | | |
| Foochow..... | May 24-31..... | — | — | Reported present in epidemic form. Present. |
| Nanking..... | July 25-Aug. 22..... | — | — | |
| North Manchuria..... | May 27..... | 2 | 1 | |
| Ecuador: | | | | |
| Guayaquil..... | June 1-15..... | 1 | 1 | May 16-June 30, 1925: Rats examined, 30,347; found infected, 93. July 1-Aug. 15, 1925: Rats taken, 31,366; rats found infected, 107. |
| Egypt..... | | | | Jan. 1-Aug. 19, 1925: Cases, 98. Corresponding period year 1914: Cases, 347. |
| City— | | | | |
| Alexandria..... | June 17-24..... | 2 | 2 | Bubonic. |
| Port Said..... | June 17-Aug. 6..... | 8 | 3 | |
| Do..... | July 30-Aug. 16..... | 3 | 1 | |
| Suez..... | June 14-27..... | 3 | 2 | Septicemic. |
| Do..... | Aug. 19..... | 1 | 1 | |
| Province— | | | | |
| Assiout..... | June 5..... | 1 | 1 | |
| Beni-Souef..... | June 10-16..... | 8 | 4 | |
| Do..... | Aug. 6-12..... | 5 | 2 | |
| Charkieh..... | June 6-8..... | 1 | 1 | |
| Kena..... | June 17..... | 1 | 1 | |
| Minia..... | June 6-17..... | 3 | 2 | |
| France: | | | | |
| Marseille..... | Aug. 13-18..... | 3 | — | |
| Gold Coast..... | March-April..... | 3 | 3 | |
| Greece: | | | | |
| Athens..... | July 1-Aug. 14..... | 26 | — | |
| Piræus..... | July 18-Aug. 14..... | 9 | — | |

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 27 to October 2, 1925—Continued

PLAGUE—Continued

| Place | Date | Cases | Deaths | Remarks |
|----------------------|----------------------|-------|--------|--|
| Hawaii Territory: | | | | |
| Honokaa | June 28..... | | | Plague-infected rat. |
| Do. | Aug. 7..... | 1 | | |
| Do. | Aug. 15..... | | | Plague-infected rat, near Paaulilo |
| Kukuhale | July 31..... | | | Plague-infected rat. |
| Paauhau | Aug. 12..... | | | Do. |
| India: | | | | Apr. 26-June 27, 1925: Cases: 10,166; deaths, 8,913. June 28-July 18, 1925: Cases, 614; deaths, 445. |
| Bombay | Apr. 26-June 27..... | 65 | 59 | |
| Do. | June 28-Aug. 25..... | 13 | 9 | |
| Calcutta | May 30-June 6..... | 1 | 1 | |
| Do. | July 5-11..... | 1 | 1 | |
| Karachi | May 18-June 6..... | 4 | 3 | |
| Do. | July 31-Aug. 6..... | 1 | 1 | |
| Madras | May 10-June 27..... | 15 | 8 | |
| Do. | June 28-Aug. 1..... | 20 | 7 | |
| Rangoon | May 3-June 27..... | 113 | 95 | |
| Do. | June 28-July 4..... | 20 | 18 | |
| Do. | July 12-Aug. 8..... | 85 | 72 | Feb. 8-14, 1925: Cases, 13; deaths, 13. (Received out of date.) |
| Indo-China: | | | | |
| Cochin-China— | | | | |
| Saigon | Apr. 20-June 21..... | 3 | 3 | Including 100 square kilometers of surrounding country. |
| Iraq: | | | | |
| Bagdad | May 24-June 6..... | 9 | | |
| Do. | June 21-27..... | 5 | 1 | |
| Java: | | | | |
| Batavia | May 6-June 19..... | 32 | 31 | |
| Do. | July 5-31..... | 65 | 65 | In Province. |
| Cheribon | Apr. 1-June 13..... | | 78 | |
| Do. | July 11-17..... | 1 | 1 | |
| Paseroean Residency | Mar. 7-May 25..... | | | Epidemic in several localities. |
| Do. | July 13..... | | | Do. |
| Pekalongan | Apr. 9-June 13..... | | 86 | |
| Soerabaya | May 7-27..... | 3 | 3 | |
| Do. | June 28-July 4..... | 16 | 1 | |
| Soerakarta Residency | May 28..... | | | Epidemic at Kalidgambe. |
| Tegal | Apr. 2-May 16..... | | 36 | |
| Do. | May 24-June 13..... | | 16 | |
| Madagascar: | | | | |
| Province— | | | | |
| Itasy | Apr. 1-15..... | 1 | 1 | |
| Do. | July 1-15..... | 4 | 4 | Bubonic, 3; septicemic, 1. |
| Tananarive | Apr. 1-June 30..... | 232 | 200 | |
| Do. | July 1-15..... | 9 | 9 | Bubonic, 5; pneumonic, 2; septicemic, 2. |
| Town— | | | | |
| Tamatave (port) | Apr. 1-15..... | 2 | | |
| Do. | June 1-7..... | | 1 | |
| Tananarive Town | Apr. 16-May 31..... | 5 | 5 | |
| Mauritius | | | | April, 1925: One case. |
| Nigeria: | | | | |
| Do. | December, 1924..... | 17 | 13 | |
| Do. | January, 1925..... | 10 | 6 | |
| Do. | March-May..... | 25 | 18 | |
| Peru: | | | | |
| Callao | July, 1925..... | | | Present. Press reports. |
| Cafete | August, 1925..... | | | Do. |
| Lima | Aug. 14..... | 14 | | Press reports. |
| Russia: | | | | |
| Kalmyk District | May 19-31..... | 10 | 8 | |
| North Caucasus | June 6-7..... | 2 | 2 | |
| Urts | May 25-June 3..... | 2 | 2 | In laboratory worker and contact. Locality, Province of Bukeevsk. |
| Siam: | | | | |
| Bangkok | Apr. 26-June 20..... | 13 | 11 | |
| Do. | June 28-Aug. 8..... | 4 | 4 | |
| Straits Settlements: | | | | |
| Singapore | May 3-30..... | 9 | 9 | |
| Do. | June 28-July 18..... | 2 | 2 | |
| Tunis: | | | | |
| Tunis | Aug. 12-18..... | | | Plague rodent. |
| Turkey: | | | | |
| Constantinople | May 25-31..... | 1 | | |

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 27 to October 2, 1925—Continued

PLAGUE—Continued

| Place | Date | Cases | Deaths | Remarks |
|--------------------------|---------------------|-------|--------|----------------------------------|
| Union of South Africa: | | | | |
| Cape Province— | | | | |
| Kimberley..... | June 14-20..... | 1 | 1 | In a Malay camp. |
| Do..... | | | | One plague-infected house mouse. |
| Orange Free State— | | | | |
| Boshof District..... | June 28-Aug. 8..... | 3 | 2 | Natives. |
| On vessel: | | | | |
| Steamship Elstratios Ca- | July 7-11..... | 4 | 1 | At Alexandria, Egypt. Vessel |
| voudis..... | | | | arrived July 7, 1925. Regular |
| | | | | route, ports in Syria, Greece, |
| | | | | and Port Said. Dead rats |
| | | | | reported found on board. |
| Steamship Arcadia..... | July 24-27..... | 2 | | At Piræus, Greece, from Alex- |
| Steamship Anatolia..... | Aug. 8..... | 1 | | andria, Egypt. |
| | | | | Do. |

SMALLPOX

| | | | | |
|---------------------------|----------------------|-----|----|----------------------------------|
| Algeria: | | | | |
| Algiers..... | May 1-June 30..... | 43 | 2 | |
| Do..... | July 1-Aug. 20..... | 67 | | |
| Constantine..... | do..... | 47 | | |
| Brazil: | | | | |
| Bahia..... | June 28-Aug. 22..... | 7 | 6 | |
| Pernambuco..... | Apr. 26-May 30..... | 40 | 21 | |
| Do..... | June 7-27..... | 5 | 3 | |
| Do..... | July 5-18..... | 1 | 1 | |
| Porto Alegre..... | June 14-20..... | | 1 | |
| Do..... | Aug. 9-15..... | | 1 | |
| Rio de Janeiro..... | May 9-June 27..... | 5 | 1 | |
| Do..... | June 28-Aug. 15..... | 122 | 36 | |
| British East Africa: | | | | |
| Kenya— | | | | |
| Mombasa..... | Apr. 19-June 20..... | 27 | 13 | |
| Do..... | July 5-Aug. 8..... | 56 | 9 | |
| Nairobi..... | May 3-9..... | 3 | 2 | |
| Tanganyika Territory..... | Apr. 5-May 23..... | 82 | 24 | |
| Do..... | June 14-27..... | 48 | 3 | |
| Uganda..... | Feb. 1-28..... | 2 | | |
| British South Africa: | | | | |
| Northern Rhodesia..... | Apr. 28-May 4..... | 3 | | |
| Southern Rhodesia..... | June 11-July 1..... | 2 | | |
| Bulgaria: | | | | |
| Sofia..... | Aug. 6-19..... | 2 | | |
| Canada: | | | | |
| Alberta— | | | | |
| Calgary..... | Aug. 2-8..... | 1 | | From Crossfield, Alberta. |
| British Columbia— | | | | |
| Vancouver..... | June 1-28..... | 7 | | |
| Do..... | July 6-Sept. 13..... | 15 | 1 | |
| New Brunswick— | | | | |
| Restigouche County..... | June 1-30..... | 1 | | |
| Ontario: | | | | |
| Galt..... | June 14-20..... | 2 | | May 31-July 25, 1925: Cases, 20; |
| Kingston..... | do..... | 1 | | deaths, 1. Corresponding pe- |
| Do..... | Aug. 23-29..... | 1 | | riod, 1924: Cases, 24. |
| North Bay..... | June 28-July 18..... | 3 | | |
| Quebec— | | | | |
| Quebec..... | July 26-Aug. 1..... | 2 | 2 | |
| Saskatchewan— | | | | |
| Regina..... | May 24-30..... | 3 | | |
| China: | | | | |
| Amoy..... | May 17-June 30..... | | 7 | |
| Do..... | July 12-Aug. 8..... | | | Present. |
| Antung..... | May 11-June 27..... | 7 | | |
| Do..... | June 28-Aug. 9..... | 3 | | |
| Canton..... | May 10-June 13..... | | | Do. |
| Chungking..... | May 3-30..... | | | Widespread. |
| Foochow..... | May 9-Aug. 15..... | | | Present. |
| Hongkong..... | Apr. 19-June 13..... | 15 | 12 | |
| Do..... | July 19-25..... | 1 | | |

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 27 to October 2, 1925—Continued

SMALLPOX—Continued

| Place | Date | Cases | Deaths | Remarks |
|-------------------------|-----------------|-------|--------|--|
| China—Continued. | | | | |
| Manchuria— | | | | |
| Dairen | Apr. 13-June 28 | 115 | 17 | |
| Do | June 28-July 26 | 4 | 2 | |
| Harbin | May 13-June 2 | 2 | 2 | |
| Nanking | May 9-Aug. 15 | | | Present. |
| Shanghai | May 3-June 6 | 5 | 2 | |
| Do | July 6-25 | 1 | 1 | |
| Swatow | May 17-Aug. 15 | | | Stated to be endemic. |
| Tientsin | May 9-June 6 | 3 | | |
| Do | July 12-18 | 1 | | |
| Chosen | January-April | 1,067 | 243 | |
| Seoul | May 1-June 30 | 2 | | |
| Egypt: | | | | |
| Alexandria | May 21-27 | 1 | 1 | |
| Cairo | Mar. 19-May 13 | 5 | | |
| Do | June 18-24 | 17 | 5 | |
| France | | | | February-June, 1925: Cases, 102. |
| Paris | May 21-31 | 1 | | |
| Germany: | | | | |
| Baden (State) | July 12-25 | 2 | 1 | |
| Stuttgart | July 5-11 | 3 | 1 | |
| Gold Coast | | | | January-May, 1925: Cases, 379; deaths, 29. |
| Great Britain: | | | | |
| England and Wales | | | | May 24-June 27, 1925: Cases, 441. |
| Birmingham | July 7-13 | 1 | | June 28-Aug. 29, 1925: Cases, 537. |
| Cardiff | June 14-20 | 1 | | |
| Do | Aug. 2-8 | 14 | 8 | |
| Newcastle-on-Tyne | May 31-June 27 | 4 | | |
| Do | June 28-Sept. 5 | 9 | 1 | |
| Greece | | | | January-June, 1925: Cases, 47; deaths, 8. |
| Athens | May 1-31 | | 2 | |
| Do | June 24-30 | 27 | 3 | |
| Do | July 1-31 | 14 | 1 | |
| Haiti: | | | | |
| Port au Prince | Aug. 23-29 | 1 | | Reported at Jean Rabel Aug. 27. |
| Hungary: | | | | |
| Budapest | July 5-18 | 13 | | |
| India: | | | | |
| Bombay | Apr. 26-June 27 | 156 | 115 | Apr. 26-June 27, 1925: Cases, 37,107; deaths, 9,152. June 28-July 18, 1925: Cases, 7,430; deaths, 2,002. |
| Do | June 28-July 4 | 15 | 10 | |
| Do | July 19-Aug. 8 | 9 | 7 | |
| Calcutta | May 3-9 | 109 | 100 | |
| Do | May 17-23 | 75 | 61 | |
| Do | May 31-June 20 | 88 | 81 | |
| Do | July 5-Aug. 15 | 54 | 43 | |
| Karachi | May 18-June 27 | 6 | 1 | |
| Do | June 28-July 4 | 1 | 1 | |
| Madras | May 18-June 27 | 152 | 66 | |
| Do | June 28-July 18 | 68 | 25 | |
| Do | Aug. 2-22 | 67 | 21 | |
| Rangoon | May 3-June 27 | 207 | 99 | |
| Do | June 28-July 4 | 2 | 1 | |
| Do | July 12-Aug. 8 | 22 | 11 | |
| Indo-China: | | | | |
| Cochin-China— | | | | |
| Saigon | Apr. 20-May 21 | 13 | 9 | Including 100 square kilometers of surrounding country. Jan. 11-May 30, 1925: Cases, 136; deaths, 46. |
| Iraq: | | | | |
| Bagdad | Apr. 29-June 20 | 4 | 1 | |
| Italy: | | | | |
| Do | Dec. 28-June 27 | 97 | | |
| Do | June 28-July 4 | 9 | | |
| Catania | Aug. 17-23 | 1 | | |
| Syracuse Province | do | 1 | | |
| Turin | Aug. 17-30 | 4 | | |
| Venice | July 27-Aug. 2 | 3 | | |
| Jamaica: | | | | |
| Kingston | Apr. 26-June 27 | 19 | | Apr. 26-June 27, 1925: Cases, 110. June 28-Aug. 29, 1925: Cases 102 (reported as alastrim). |
| Do | June 28-Aug. 29 | 35 | | Reported as alastrim. Do. |

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 27 to October 2, 1925—Continued

SMALLPOX—Continued

| Place | Date | Cases | Deaths | Remarks |
|----------------------|------------------|-------|--------|---|
| Japan: | | | | |
| Kobe | May 24-June 27 | 2 | | |
| Nagasaki | May 15-21 | 2 | | |
| Do | July 6-19 | 1 | 1 | |
| Taiwan | June 1-30 | 11 | | |
| Do | July 1-10 | 1 | | |
| Tokyo | June 14-20 | 1 | | |
| Yokohama | May 25-June 12 | 3 | | |
| Java: | | | | |
| Batavia | May 2-June 26 | 2 | | |
| Do | July 4-31 | 5 | | |
| Brebes | Apr. 22-28 | 1 | | |
| Cheribon | Apr. 16-22 | | 1 | |
| Kediri Residency | July 14 | | | Epidemic. |
| Pekalongan | Apr. 2-8 | 1 | | |
| Rembang Residency | Apr. 23 | | | Epidemic at Kawedanan. |
| Soerabaya | Apr. 16-June 27 | 304 | 41 | |
| Do | June 28-July 25 | 211 | 25 | |
| South Bantam | Apr. 16-22 | 1 | | |
| Tegal | Mar. 29-May 2 | 2 | 1 | |
| Latvia | | | | May-June, 1925: Cases, 4. |
| Lithuania | | | | February-May, 1925: Cases, 6. |
| Malta | June 1-30 | 9 | | |
| Do | July 1-31 | 5 | | |
| Mexico: | | | | |
| Durango | do | | 11 | |
| Do | July-August | | 22 | |
| Guadalajara | June 2-29 | | 10 | |
| Do | June 20-Aug. 31 | | 16 | |
| Mexico City | May 24-June 27 | 12 | | Including municipalities in Federal district. |
| Do | July 5-11 | 3 | | Do. |
| Do | July 26-Aug. 16 | 7 | | Epidemic at El Hule and other localities. |
| Oaxaca, State | Aug. 14 | | | |
| San Luis Potosi | Aug. 16-Sept. 12 | 3 | 1 | |
| Tampico | June 1-10 | | 1 | |
| Do | July 1-31 | 4 | 2 | |
| Morocco: | | | | |
| Tangier | May 17-June 5 | | | Present among natives. |
| Nigeria | | | | December, 1924: Cases, 40; deaths, 16. |
| Do | | | | January, 1925: Cases, 1,538; deaths, 132. |
| Persia: | | | | |
| Teheran | Mar. 21-May 21 | | 29 | |
| Peru: | | | | |
| Arequipa | June 1-30 | | 1 | |
| Poland | | | | Mar. 1-June 27, 1925: Cases, 41. |
| Portugal: | | | | |
| Lisbon | Apr. 26-June 27 | 36 | 6 | |
| Do | June 28-Aug. 15 | 40 | 14 | |
| Oporto | June 14-20 | 1 | | |
| Do | July 10-Aug. 29 | 7 | | |
| Rumania | | | | January-May, 1925: Cases, 22; deaths, 1. |
| Russia | | | | December, 1924: Cases, 1,000. |
| Do | April | 400 | | January-March, 1925: Cases, 5,243. Later than previously published reports. |
| Siam: | | | | |
| Bangkok | Apr. 26-June 27 | 27 | 19 | |
| Do | June 28-July 11 | 2 | 1 | |
| Spain: | | | | |
| Malaga | May 24-June 20 | | 15 | |
| Do | July 5-Aug. 29 | | 21 | |
| Valencia | May 31-June 27 | 3 | 1 | |
| Straits Settlements: | | | | |
| Singapore | May 17-23 | 1 | | |
| Do | July 5-11 | 1 | 1 | |
| Sumatra: | | | | |
| Pedang | July 12-25 | 1 | | |
| Switzerland: | | | | |
| Berne | June 7-13 | 1 | | |
| Lucerne | June 14-20 | 4 | | |
| Syria: | | | | |
| Beirut | Apr. 21-30 | 1 | | |

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 27 to October 2, 1925—Continued

SMALLPOX—Continued

| Place | Date | Cases | Deaths | Remarks |
|------------------------|---------------------|-------|--------|-----------------------------------|
| Tripoli..... | | | | Jan. 3-April 15, 1925: Cases, 14. |
| Tunis: | | | | |
| Tunis..... | May 6-June 30..... | | 46 | |
| Do..... | July 1-Sept. 8..... | | 49 | |
| Turkey: | | | | |
| Constantinople..... | May 16-22..... | 2 | | |
| Union of South Africa: | | | | Outbreaks. |
| Cape Province..... | May 24-Aug. 8..... | | | |
| Port Elizabeth..... | Apr. 18-25..... | 8 | 1 | |
| Transvaal..... | May 3-June 6..... | | | Do. |
| Uruguay..... | | | | December, 1924: Cases, 8. |
| Do..... | | | | February-April, 1925: Cases, 10. |

TYPHUS FEVER

| | | | | |
|----------------------|----------------------|----|---|--|
| Algeria: | | | | |
| Algiers..... | May 11-20..... | 6 | 2 | In vicinity, 12 cases. Isolated. |
| Do..... | July 1-Aug. 20..... | 18 | 8 | |
| Constantine..... | July 1-10..... | 17 | | District. |
| Do..... | July 21-31..... | 7 | | Department. |
| Oran..... | do..... | 8 | | Do. |
| Bulgaria: | | | | November-December, 1924: 1 |
| Sofia..... | May 28-June 3..... | 2 | | case. January-June, 1925: Cases, 124; deaths, 7. |
| Chile: | | | | |
| Iquique..... | Aug. 8-22..... | | 2 | |
| Valparaiso..... | May 10-July 18..... | | 9 | |
| China: | | | | |
| Manchuria-- | | | | |
| Harbin..... | May 19-June 2..... | 2 | | |
| Czechoslovakia..... | | | | April, 1925: 1 case. |
| Egypt: | | | | |
| Alexandria..... | May 7-June 3..... | 3 | 1 | |
| Do..... | July 9-15..... | 1 | | |
| Cairo..... | Mar. 26-May 13..... | 6 | 4 | |
| Port Said..... | May 14-20..... | 1 | 1 | |
| Do..... | July 30-Aug. 12..... | 4 | 1 | |
| Do..... | Aug. 20-26..... | 3 | | |
| Estonia..... | | | | Apr. 1-May 30, 1925: Cases, 6. |
| Great Britain: | | | | |
| Scotland-- | | | | |
| Greenock..... | Aug. 6-18..... | 7 | | |
| Greece..... | | | | January-June, 1925: Cases, 57; deaths, 6. |
| Athens..... | May 1-31..... | | 2 | |
| Do..... | July 1-31..... | 3 | | |
| Kalamata..... | Apr. 1-30..... | | 2 | |
| Patras..... | June 28-July 4..... | | 2 | |
| Iraq: | | | | |
| Bagdad..... | July 12-18..... | 1 | | |
| Ireland: | | | | |
| Cork County..... | Aug. 25..... | 3 | | |
| Latvia..... | | | | April-June, 1925: Cases, 26. |
| Libau..... | July 14-20..... | 1 | | |
| Lithuania..... | | | | March-May, 1925: Cases, 158; deaths, 7. |
| Mexico: | | | | |
| Mexico City..... | May 24-June 6..... | 24 | | Including municipalities in Federal district. |
| Do..... | June 28-Aug. 1..... | 39 | | Do. |
| Do..... | Aug. 16-29..... | 13 | | Do. |
| San Luis Potosi..... | June 26-July 4..... | | 1 | |
| Tampico..... | Aug. 20-31..... | 1 | | |
| Morocco..... | | | | January-June, 1925: Cases, 421. Later than previously published reports. |

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 27 to October 2, 1925—Continued

TYPHUS FEVER—Continued

| Place | Date | Cases | Deaths | Remarks |
|-------------------------------|-----------------|-------|--------|---|
| Palestine: | | | | |
| Dagania | July 21-27 | 1 | | |
| Ekron | do. | 1 | | |
| Haifa | Aug. 20 | 1 | | |
| Jaffa district | June 28 | 2 | | |
| Do. | Aug. 20 | 1 | | |
| Jerusalem | July 20-Aug. 3 | 2 | | From Ramleh district. |
| Majdal | May 26-June 8 | 3 | | |
| Ramleh | May 19-25 | 1 | | |
| Safad | June 9-15 | 1 | | |
| Do. | July 21-27 | 1 | | |
| Tel Aviv | do. | 1 | | |
| Persia: | | | | |
| Teheran | Apr. 21-May 21 | | 1 | |
| Peru: | | | | |
| Arequipa | Apr. 1-June 30 | | 3 | |
| Do. | July 1-31 | | 1 | |
| Poland: | | | | Mar. 1-Apr. 11, 1925: Cases 1,195; deaths, 74. Apr. 19-June 27, 1925: Cases, 1,001; deaths, 87. |
| Portugal: | | | | |
| Oporto | May 31-June 6 | 1 | | |
| Do. | July 5-11 | 1 | | |
| Rumania: | | | | |
| Constantza | January-May | 1,360 | 152 | |
| Do. | May 1-June 30 | 2 | | |
| Russia: | | | | December, 1924: Cases, 5,062. |
| Do. | April | 5,512 | | January-March, 1925: Cases, 24,595. Later than previously published reports. |
| Spain: | | | | |
| Seville | Aug. 20-26 | | 1 | |
| Valencia | June 7-13 | | 1 | |
| Tunis: | | | | |
| Tunis | May 21-June 17 | 16 | 8 | |
| Do. | July 8-Sept. 8 | 12 | 5 | |
| Turkey: | | | | |
| Constantinople | May 11-31 | 7 | 2 | |
| Union of South Africa: | | | | June, 1925: Cases, 61; deaths, 4. |
| Cape Province | Apr. 19-July 25 | 39 | 5 | June, 1925: Cases, 23; deaths, 1. |
| Natal | May 3-July 11 | 14 | | June, 1925: Cases, 2. |
| Durban | Feb. 1-July 4 | 18 | | |
| Orange Free State | Feb. 1-June 27 | 26 | 4 | June, 1925: Cases, 27; deaths, 1. |
| Hoopstad | July 5-11 | | | Outbreaks. |
| Transvaal | do. | 11 | 2 | June, 1925: Cases, 6; deaths, 2. |
| Johannesburg | July 19-25 | 1 | | |
| Yugoslavia: | | | | |
| Belgrade | June 8-14 | 1 | | |
| Zagreb | May 8-21 | 7 | 1 | |

YELLOW FEVER

| | | | |
|---------------------|---------------|---|---|
| Gold Coast: | Apr. 1-30 | 1 | |
| Ivory Coast: | | | |
| Lahou | June 1-10 | 1 | 1 |
| Liberia: | | | |
| Monrovia | Aug. 7 | 4 | |
| Nigeria: | | | |
| Ibaden | Apr. 24-30 | 1 | |
| Lagos | Apr. 29-May 5 | 4 | 1 |